

# Unknotting number of some knots

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## Abstract

Unknotting number of torus knots is well known. A torus knot can be transform to unknot by making it an ascending or descending diagram with unknotting number of crossings changes. In [1], a new unknotting approach to unknot torus knots was provided. Based on that approach, here, we provide unknotting number of more than 700 knots having crossing numbers from 10 to 16 by showing them in an unknotting sequence of some torus knot.

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## 1. Introduction

A new approach to unknot torus knots and links is provided in [1]. A matlab program is given in [2] which gives  $u(K)$  positions of crossings in toric braid  $B(p, q)$  whose change transform the torus knot  $K(p, q)$  to unknot. Such a set of  $u(K)$  crossings is called *minimal unknotting crossing data*. It is easy to observe that after changing a fixed random crossing selection in *minimal unknotting crossing data* of the torus knot  $K(p, q)$ , the unknotting number of the resultant knot is equal to  $u(K(p, q)) - \#(\text{random crossing selection})$ . Using this, we determine the unknotting number of some knots. Some observations are given in Table (1-15). First column is showing a Knot  $K$  in H-T table, second column is showing its unknotting number  $u(K)$ , third is showing the torus knot whose unknotting sequence contains  $K$ , fourth column is showing a minimal unknotting crossing data for the torus knot and fifth column is showing required crossing changes in torus knot to obtain  $K$ . Each row gives information about the unknotting number of a particular knot and the way to obtain it. For example, unknotting number of  ${}_n14_{11242}$  is 5 since this knot can be obtained in unknotting sequence of  $K(5, 7)$ . By [2],  $\langle 8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28 \rangle$  is a minimal unknotting crossing data for  $K(5, 7)$  and after changing  $\langle 11, 12, 14, 16, 17, 18, 19 \rangle$  crossings in closure of toric braid  $B(5, 7)$  the resultant knot is equivalent to  ${}_n14_{11242}$ . Hence its unknotting number is  $u(K(5, 7)) - 7 = 5$ . In Table (1-13), unknotting numbers are obtained by using minimal unknotting crossing data for torus knots by [1]. Set of ascending(descending) crossings in toric braid is also a minimal unknotting crossing data for torus knot. Using minimal unknotting crossing data for torus knots obtained by ascending/descending method, unknotting number for some knots is given in Table (14-15) by the same procedure.

## References

- [1] V. Siwach and P. Madeti, *A method for unknotting torus knots: A new approach*. Preprint.
- [2] V. Siwach and P. Madeti, *Matlab program for minimal unknotting crossing data*. [http://www.iitrpr.ac.in/sites/default/files/matlab\\_program\\_for\\_MUCD\(2\).pdf](http://www.iitrpr.ac.in/sites/default/files/matlab_program_for_MUCD(2).pdf)

Table 1: Unknotting number of some knots

Knot H-T Notation	Unknotting Number	Torus Knot	Minimal Unknotting Crossing Data	Crossing changed
$n14_{11242}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 16, 17, 18, 19
$n14_{4701}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 20, 26, 28
$n16_{503071}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 19, 20, 26
$n15_{54809}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 18, 26, 28
$n14_{7838}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 17, 26, 28
$n14_{16147}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 17, 20, 26
$n12_{242}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 17, 18, 28
$n14_{6024}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 17, 18, 26
$n12_{574}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 17, 18, 19
$n12_{472}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 16, 26, 28
$n12_{725}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 16, 20, 28
$n14_{12557}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 16, 19, 20
$n15_{86672}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 16, 18, 26
$n12_{688}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 16, 17, 20
$n13_{241}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 16, 17, 19, 20, 26, 28
$n14_{17160}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 16, 17, 18, 19, 26, 28
$n14_{14269}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 15, 18, 19, 20, 26, 28
$n14_{7560}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 15, 17, 19, 20, 26, 28
$n14_{7543}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 15, 17, 18, 20, 26, 28
$n15_{40183}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 15, 17, 18, 19, 26, 28
$n16_{268772}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 15, 16, 17, 18, 26, 28
$n14_{9525}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 15, 16, 17, 18, 20, 28
$n14_{25987}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 15, 16, 17, 18, 20, 26
$n14_{21325}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 15, 16, 17, 18, 19, 26
$n14_{14356}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 15, 16, 17, 18, 19, 20
$n13_{604}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 14, 17, 19, 20, 26, 28
$n14_{13683}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 14, 17, 18, 19, 26, 28
$n14_{7725}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 14, 16, 18, 19, 26, 28
$n12_{679}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 14, 16, 18, 19, 20, 28
$n14_{20639}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 14, 16, 17, 18, 26, 28
$n15_{12951}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 14, 16, 17, 18, 19, 26
$n14_{14025}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 14, 15, 18, 19, 26, 28
$n14_{16364}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 14, 15, 18, 19, 20, 26
$n14_{18372}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 14, 15, 17, 19, 20, 26
$n15_{78503}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 14, 15, 17, 18, 19, 26
$n14_{13917}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 14, 15, 16, 19, 20, 26
$n14_{18363}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 14, 15, 16, 18, 26, 28
$n13_{1176}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 14, 15, 16, 18, 20, 28
$n15_{38208}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 14, 15, 16, 18, 20, 26
$n14_{17191}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 14, 15, 16, 18, 19, 28
$n14_{21785}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 14, 15, 16, 18, 19, 26
$n15_{22479}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 14, 15, 16, 17, 19, 26
$n15_{11754}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 17, 18, 19, 26, 28
$n14_{21024}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 18, 20, 26, 28
$n15_{41228}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 18, 19, 26, 28
$n14_{12461}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 18, 19, 20, 26
$n15_{11725}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 17, 20, 26, 28
$n14_{9742}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 17, 19, 20, 28
$n15_{57679}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 17, 18, 26, 28
$n15_{22172}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 17, 18, 19, 26

Table 2: Unknotting number of some knots

Knot H-T Notation	Unknotting Number	Torus Knot	Minimal Unknotting Crossing Data	Crossing changed
$n16_{517944}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 16, 19, 20, 28
$n16_{428705}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 16, 19, 20, 26
$n14_{23958}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 16, 18, 26, 28
$n14_{24120}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 16, 17, 20, 28
$n15_{140484}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 16, 17, 20, 26
$n13_{4587}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 16, 17, 18, 28
$n15_{140512}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 16, 17, 18, 26
$n15_{94073}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 14, 17, 18, 26, 28
$n15_{12301}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 14, 17, 18, 19, 26
$n16_{999418}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 14, 16, 17, 18, 28
$n15_{41337}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 14, 15, 18, 20, 26
$n14_{12701}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 14, 15, 18, 19, 28
$n16_{536524}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 14, 15, 18, 19, 26
$n15_{87652}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 16, 18, 19, 20, 28
$n15_{40293}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 16, 18, 19, 20, 26
$n16_{268957}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 16, 17, 19, 26, 28
$n14_{9578}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 16, 17, 18, 19, 28
$n16_{456786}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 16, 17, 18, 19, 26
$n16_{613788}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 15, 18, 19, 20, 26
$n15_{40125}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 15, 17, 18, 26, 28
$n15_{85988}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 15, 17, 18, 19, 26
$n16_{463333}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 15, 16, 19, 26, 28
$n16_{459802}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 15, 16, 19, 20, 28
$n16_{862981}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 15, 16, 19, 20, 26
$n16_{524345}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 15, 16, 18, 19, 26
$n16_{269473}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 15, 16, 17, 26, 28
$n16_{510585}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 15, 16, 17, 19, 20
$n16_{470460}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 15, 16, 17, 18, 26
$n15_{101247}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 14, 18, 19, 26, 28
$n14_{20750}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 14, 16, 18, 26, 28
$n16_{471541}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 14, 16, 18, 19, 26
$n14_{19768}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 14, 15, 19, 26, 28
$n16_{598093}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 14, 15, 19, 20, 26
$n14_{18339}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 14, 15, 18, 26, 28
$n16_{605426}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 14, 15, 18, 19, 26
$n14_{26185}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 14, 15, 17, 18, 26
$n16_{597144}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 14, 15, 16, 19, 26
$n14_{23835}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 19, 20, 26, 28
$n16_{873435}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 15, 19, 20, 26
$n14_{22068}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 15, 17, 26, 28
$n14_{24006}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 15, 17, 18, 26
$n16_{584582}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 15, 16, 18, 26
$n15_{106007}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 14, 18, 26, 28
$n16_{412591}$	5	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 14, 18, 19, 26
$n10_{21}$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	15, 16, 17, 18, 19, 20, 26, 28
$n10_{36}$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	14, 16, 17, 18, 19, 20, 26, 28
$n10_{27}$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	14, 15, 17, 18, 19, 20, 26, 28
$n12_{153}$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	14, 15, 16, 17, 18, 19, 26, 28
$n15_{40214}$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	12, 16, 17, 18, 19, 20, 26, 28
$n12_{591}$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	12, 15, 17, 18, 19, 20, 26, 28

Table 3: Unknotting number of some knots

Knot H-T Notation	Unknotting Number	Torus Knot	Minimal Unknotting Crossing Data	Crossing changed
$n_{12}105$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	12, 15, 16, 17, 19, 20, 26, 28
$n_{12}305$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	12, 15, 16, 17, 18, 19, 26, 28
$n_{14}24000$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	12, 14, 16, 18, 19, 20, 26, 28
$n_{15}11691$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	12, 14, 16, 17, 19, 20, 26, 28
$n_{14}24170$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	12, 14, 16, 17, 18, 20, 26, 28
$n_{15}90644$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	12, 14, 16, 17, 18, 19, 26, 28
$n_{15}110804$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	12, 14, 16, 17, 18, 19, 20, 26
$n_{12}640$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	12, 14, 15, 18, 19, 20, 26, 28
$n_{13}730$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	12, 14, 15, 17, 19, 20, 26, 28
$n_{12}647$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	12, 14, 15, 17, 18, 20, 26, 28
$n_{13}1928$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	12, 14, 15, 17, 18, 19, 26, 28
$n_{13}3054$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	12, 14, 15, 17, 18, 19, 20, 26
$n_{12}328$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	12, 14, 15, 16, 19, 20, 26, 28
$n_{15}125261$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	12, 14, 15, 16, 17, 19, 26, 28
$n_{12}426$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	12, 14, 15, 16, 17, 19, 20, 28
$n_{14}9515$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	12, 14, 15, 16, 17, 19, 20, 26
$n_{13}3354$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	12, 14, 15, 16, 17, 18, 26, 28
$n_{12}292$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	12, 14, 15, 16, 17, 18, 20, 26
$n_{12}166$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	12, 14, 15, 16, 17, 18, 19, 26
$n_{15}43553$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 16, 17, 18, 19, 20, 26, 28
$n_{15}41183$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 15, 17, 18, 19, 20, 26, 28
$n_{15}77252$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 15, 16, 18, 19, 20, 26, 28
$n_{16}60787$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 15, 16, 17, 19, 20, 26, 28
$n_{16}224338$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 15, 16, 17, 18, 19, 26, 28
$n_{12}74$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 14, 16, 18, 19, 20, 26, 28
$a_{11}240$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 14, 16, 17, 18, 19, 26, 28
$n_{12}386$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 14, 15, 18, 19, 20, 26, 28
$n_{12}694$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 14, 15, 16, 19, 20, 26, 28
$n_{15}137251$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 14, 15, 16, 18, 19, 26, 28
$n_{14}15798$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 14, 15, 16, 18, 19, 20, 26
$a_{11}338$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 14, 15, 16, 17, 18, 19, 26
$n_{15}57753$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 16, 17, 18, 20, 26, 28
$n_{16}354133$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 16, 17, 18, 19, 26, 28
$n_{15}86757$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 16, 17, 18, 19, 20, 26
$n_{14}18605$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 15, 18, 19, 20, 26, 28
$n_{14}2125$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 15, 17, 19, 20, 26, 28
$n_{12}850$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 15, 17, 18, 19, 20, 26
$n_{16}301943$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 15, 16, 19, 20, 26, 28
$n_{15}76150$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 15, 16, 18, 20, 26, 28
$n_{16}503072$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 15, 16, 18, 19, 26, 28
$n_{14}13659$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 15, 16, 17, 19, 20, 28
$n_{16}318483$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 15, 16, 17, 18, 26, 28
$n_{16}439273$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 15, 16, 17, 18, 19, 26
$n_{12}338$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 18, 19, 20, 26, 28
$n_{15}58121$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 16, 18, 20, 26, 28
$n_{15}11996$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 16, 17, 20, 26, 28
$n_{15}45028$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 16, 17, 19, 26, 28
$n_{15}136727$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 16, 17, 18, 26, 28
$n_{14}22343$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 16, 17, 18, 20, 28
$n_{15}41024$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 16, 17, 18, 20, 26

Table 4: Unknotting number of some knots

Knot H-T Notation	Unknotting Number	Torus Knot	Minimal Unknotting Crossing Data	Crossing changed
$n_{12}417$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 16, 17, 18, 19, 28
$n_{15}110621$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 16, 17, 18, 19, 26
$n_{13}3111$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 19, 20, 26, 28
$n_{15}134791$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 18, 19, 26, 28
$n_{14}14776$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 18, 19, 20, 26
$n_{15}125424$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 17, 19, 26, 28
$n_{13}1643$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 17, 19, 20, 26
$n_{12}244$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 17, 18, 26, 28
$n_{12}576$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 17, 18, 19, 26
$n_{15}99775$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 16, 19, 26, 28
$n_{12}502$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 16, 19, 20, 28
$n_{14}11655$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 16, 19, 20, 26
$n_{16}503168$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 16, 18, 19, 26
$n_{15}138638$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 16, 17, 19, 26
$n_{13}2192$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 15, 16, 17, 18, 19, 26, 28
$n_{15}87876$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 16, 18, 19, 20, 26, 28
$n_{16}61891$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 16, 17, 19, 20, 26, 28
$n_{15}47690$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 16, 17, 18, 20, 26, 28
$n_{15}52940$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 16, 17, 18, 19, 20, 28
$n_{15}64341$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 16, 17, 18, 19, 20, 26
$n_{12}374$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 18, 19, 20, 26, 28
$n_{12}680$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 17, 19, 20, 26, 28
$n_{13}596$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 17, 18, 19, 26, 28
$n_{12}243$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 17, 18, 19, 20, 26
$n_{14}7513$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 16, 19, 20, 26, 28
$n_{14}13641$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 16, 17, 19, 20, 28
$n_{14}9537$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 16, 17, 19, 20, 26
$n_{13}4569$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 16, 17, 18, 26, 28
$n_{12}689$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 16, 17, 18, 19, 26
$n_{15}22279$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 14, 16, 19, 20, 26, 28
$n_{15}30333$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 14, 16, 18, 20, 26, 28
$n_{16}431680$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 14, 16, 18, 19, 26, 28
$n_{14}21883$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 14, 16, 18, 19, 20, 28
$n_{15}96262$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 14, 16, 18, 19, 20, 26
$n_{15}22010$	4	$K(5, 7)$	8, 12, 14, 16, 17, 18, 19, 20, 26, 28	8, 12, 14, 16, 17, 20, 26, 28
$n_{15}126163$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 14, 16, 17, 19, 26, 28
$n_{16}805055$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 14, 16, 17, 18, 26, 28
$n_{15}52931$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 14, 16, 17, 18, 19, 20
$n_{13}1905$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 14, 15, 18, 19, 26, 28
$n_{15}78826$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 14, 15, 16, 19, 26, 28
$n_{13}883$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 16, 18, 19, 20, 26, 28
$n_{12}91$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 16, 17, 19, 20, 26, 28
$n_{14}11804$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 16, 17, 18, 19, 26, 28
$n_{14}18194$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 15, 18, 19, 20, 26, 28
$n_{16}61908$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 15, 17, 19, 20, 26, 28
$n_{14}13912$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 15, 16, 19, 20, 26, 28
$n_{14}16415$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 15, 16, 18, 19, 26, 28
$n_{16}268958$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 15, 16, 17, 19, 26, 28
$n_{14}16016$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 15, 16, 17, 19, 20, 26
$n_{15}40693$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 15, 16, 17, 18, 26, 28

Table 5: Unknotting number of some knots

Knot H-T Notation	Unknotting Number	Torus Knot	Minimal Unknotting Crossing Data	Crossing changed
$n_{13}2941$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 14, 16, 18, 19, 26, 28
$n_{13}3137$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 14, 15, 18, 19, 26, 28
$n_{16}302111$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 16, 17, 19, 20, 26
$n_{16}320433$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 16, 17, 18, 26, 28
$n_{16}489170$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 16, 17, 18, 19, 26
$n_{14}23842$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 15, 19, 20, 26, 28
$n_{15}64541$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 15, 18, 19, 26, 28
$n_{14}16367$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 15, 18, 19, 20, 26
$n_{14}7549$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 15, 17, 19, 20, 26
$n_{13}2019$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 15, 17, 18, 20, 28
$n_{12}474$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 15, 17, 18, 19, 26
$n_{14}12558$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 15, 16, 18, 19, 26
$n_{14}15241$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 15, 16, 17, 18, 26
$n_{13}770$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 14, 19, 20, 26, 28
$n_{14}16755$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 14, 18, 19, 26, 28
$n_{15}128700$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 14, 16, 18, 26, 28
$n_{15}126168$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 14, 16, 17, 18, 26
$n_{14}15552$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 14, 15, 19, 20, 26
$n_{14}11559$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 14, 15, 18, 19, 26
$n_{16}524356$	4	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 14, 15, 16, 19, 26
$n_{14}18217$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 19, 20, 28, 31
$n_{15}134029$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 19, 20, 25, 31
$n_{14}17435$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 19, 20, 25, 28
$n_{14}19894$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 18, 20, 31, 32
$n_{14}19778$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 18, 20, 28, 31
$n_{15}106491$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 18, 20, 25, 32
$n_{15}162196$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 18, 20, 25, 28
$n_{14}14560$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 18, 19, 20, 31
$n_{14}10526$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 18, 19, 20, 28
$n_{14}10320$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 17, 19, 25, 31
$n_{13}2405$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 17, 18, 20, 31
$n_{12}888$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 17, 18, 20, 28
$n_{15}143513$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 19, 20, 25, 28, 31, 32
$n_{16}456797$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 18, 19, 20, 25, 31, 32
$n_{15}26021$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 18, 19, 20, 25, 28, 32
$n_{15}142336$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 17, 20, 25, 28, 31, 32
$n_{15}15791$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 17, 19, 20, 25, 31, 32
$n_{15}7047$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 17, 19, 20, 25, 28, 32
$n_{16}703716$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 16, 19, 20, 25, 31, 32
$n_{15}128785$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 16, 18, 20, 28, 31, 32
$n_{14}12695$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 16, 18, 19, 25, 31, 32
$n_{15}18579$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 16, 18, 19, 20, 28, 32
$n_{16}445185$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 16, 18, 19, 20, 25, 31
$n_{16}648001$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 16, 17, 20, 25, 31, 32
$n_{16}92599$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 16, 17, 20, 25, 28, 32
$n_{15}58010$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 16, 17, 19, 25, 31, 32
$n_{15}14867$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 16, 17, 19, 20, 28, 32
$n_{15}12642$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 16, 17, 19, 20, 25, 31
$n_{15}133868$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 16, 17, 18, 20, 28, 32
$n_{13}300$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 16, 17, 18, 20, 25, 28

Table 6: Unknotting number of some knots

Knot H-T Notation	Unknotting Number	Torus Knot	Minimal Unknotting Crossing Data	Crossing changed
$n15_{12324}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 19, 25, 28, 31, 32
$n13_{5016}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 18, 25, 28, 31, 32
$n15_{100681}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 18, 19, 25, 31, 32
$n14_{20757}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 18, 19, 25, 28, 32
$n16_{825321}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 18, 19, 20, 25, 32
$n16_{585589}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 18, 19, 20, 25, 31
$n16_{122275}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 17, 19, 25, 31, 32
$n15_{33401}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 17, 19, 25, 28, 32
$n13_{1291}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 17, 18, 20, 31, 32
$n13_{1320}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 17, 18, 20, 25, 28
$n15_{125141}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 17, 18, 19, 25, 32
$n13_{1104}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 16, 18, 25, 28, 32
$n15_{33411}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 16, 17, 19, 28, 32
$n16_{105805}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 19, 20, 25, 28, 32
$n14_{19763}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 18, 19, 25, 31, 32
$n15_{22503}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 18, 19, 20, 28, 32
$n15_{115629}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 18, 19, 20, 25, 32
$n16_{601164}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 18, 19, 20, 25, 31
$n15_{57962}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 17, 19, 25, 31, 32
$n14_{11799}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 17, 19, 25, 28, 32
$n15_{12332}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 17, 19, 20, 25, 32
$n16_{1000337}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 17, 18, 20, 25, 32
$n16_{268063}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 16, 20, 25, 31, 32
$n15_{53158}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 16, 18, 20, 31, 32
$n15_{25153}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 16, 18, 20, 28, 32
$n15_{52191}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 16, 18, 20, 28, 31
$n16_{96834}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 16, 18, 20, 25, 28
$n14_{10943}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 16, 18, 19, 25, 31
$n14_{14431}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 16, 18, 19, 20, 31
$n16_{460795}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 16, 17, 20, 25, 31
$n14_{8510}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 16, 17, 18, 20, 32
$n14_{4738}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 15, 19, 25, 31, 32
$n14_{2559}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 15, 19, 25, 28, 32
$n15_{22790}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 15, 19, 20, 25, 31
$n14_{14620}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 15, 18, 25, 31, 32
$n14_{9274}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 15, 18, 25, 28, 32
$n14_{19947}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 15, 18, 20, 28, 31
$n16_{679078}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 15, 18, 20, 25, 32
$n16_{678986}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 15, 18, 20, 25, 31
$a_{11367}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 15, 18, 19, 31, 32
$n14_{19738}$	5	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 15, 18, 19, 25, 31
$n_{1177}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 12, 14, 15, 16, 17, 19, 28, 31, 32
$n_{13792}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 12, 14, 15, 16, 17, 19, 25, 31, 32
$n15_{23298}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 12, 14, 15, 16, 17, 19, 20, 28, 31
$n14_{27156}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 12, 14, 15, 16, 17, 19, 20, 25, 32
$n16_{287969}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 12, 14, 15, 16, 17, 19, 20, 25, 31
$n15_{41357}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 12, 14, 15, 16, 17, 19, 20, 25, 28
$n_{12187}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 12, 14, 15, 16, 17, 18, 20, 31, 32
$n16_{364604}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 12, 14, 15, 16, 17, 18, 20, 25, 31
$n14_{9211}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 12, 14, 15, 16, 17, 18, 20, 25, 28

Table 7: Unknotting number of some knots

Knot H-T Notation	Unknotting Number	Torus Knot	Minimal Unknotting Crossing Data	Crossing changed
$n14_{13103}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 15, 18, 19, 20, 25, 28, 31, 32
$n16_{461331}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 15, 17, 19, 20, 25, 28, 31, 32
$n15_{26952}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 15, 17, 18, 20, 25, 28, 31, 32
$n14_{13982}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 19, 20, 25, 28, 31, 32
$a11_{234}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 18, 19, 25, 28, 31, 32
$n14_{17880}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 18, 19, 20, 25, 31, 32
$n14_{8403}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 18, 19, 20, 25, 28, 32
$n14_{27342}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 17, 18, 19, 20, 25, 31
$n13_{4242}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 19, 20, 25, 31, 32
$n15_{138583}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 18, 20, 25, 31, 32
$n15_{52885}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 17, 18, 20, 25, 31
$n12_{518}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 17, 18, 20, 25, 28
$n13_{4639}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 16, 19, 20, 25, 28, 31, 32
$n13_{833}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 16, 17, 19, 20, 25, 31, 32
$n15_{12113}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 16, 17, 18, 20, 25, 28, 32
$n15_{125444}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 18, 20, 25, 28, 31, 32
$n14_{26215}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 18, 19, 20, 25, 31, 32
$n14_{13108}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 18, 19, 20, 25, 28, 32
$n15_{26519}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 17, 18, 20, 25, 31, 32
$n15_{27461}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 17, 18, 20, 25, 28, 32
$n15_{136931}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 16, 18, 20, 25, 31, 32
$n15_{118394}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 16, 18, 20, 25, 28, 32
$n15_{23154}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 16, 17, 18, 25, 31, 32
$n15_{13583}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 16, 17, 18, 25, 28, 32
$n15_{134089}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 16, 17, 18, 20, 25, 31
$n13_{4635}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 19, 20, 25, 28, 31, 32
$n14_{13918}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 18, 19, 20, 25, 31, 32
$n13_{930}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 18, 19, 20, 25, 28, 32
$n14_{27153}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 17, 18, 20, 25, 31, 32
$n15_{76348}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 16, 17, 18, 25, 31, 32
$n15_{11813}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 16, 17, 18, 25, 28, 32
$n16_{429022}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 16, 17, 18, 20, 25, 32
$n12_{136}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 16, 17, 18, 20, 25, 28
$n14_{13125}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 15, 18, 20, 25, 31, 32
$n14_{16235}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 15, 18, 20, 25, 28, 32
$a11_{334}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 15, 18, 19, 25, 31, 32
$n15_{131659}$	4	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 15, 16, 18, 20, 25, 31
$n16_{699299}$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 19, 20, 28
$n16_{699194}$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 19, 20, 25
$n15_{62359}$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 18, 31, 32
$n14_{6022}$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 18, 28, 32
$n14_{15856}$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 18, 28, 31
$n15_{41185}$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 18, 25, 32
$n16_{380614}$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 18, 25, 28
$n16_{680466}$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 18, 20, 32
$n16_{723646}$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 18, 20, 31
$n16_{686390}$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 18, 20, 28
$n14_{18079}$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 18, 19, 31
$n14_{12201}$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 18, 19, 28
$n16_{159238}$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 18, 19, 20



Table 8: Unknotting number of some knots

Knot H-T Notation	Unknotting Number	Torus Knot	Minimal Unknotting Crossing Data	Crossing changed
$n_{14}21881$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 17, 28, 32
$n_{15}40211$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 17, 25, 32
$n_{15}22078$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 17, 20, 32
$n_{15}22340$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 17, 20, 31
$n_{15}30327$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 17, 20, 28
$n_{15}53717$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 14, 15, 16, 17, 19, 28
$n_{15}140504$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 19, 20, 28, 31, 32
$n_{16}679080$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 18, 19, 25, 31, 32
$n_{15}32158$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 18, 19, 25, 28, 32
$n_{16}584460$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 18, 19, 20, 31, 32
$n_{16}584571$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 18, 19, 20, 28, 31
$n_{15}140472$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 17, 20, 28, 31, 32
$n_{14}21324$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 17, 19, 28, 31, 32
$n_{15}12325$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 17, 19, 20, 31, 32
$n_{15}11690$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 17, 19, 20, 28, 31
$n_{15}11787$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 17, 19, 20, 25, 28
$n_{15}43686$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 17, 18, 20, 28, 32
$n_{16}685905$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 17, 18, 19, 25, 31
$n_{15}27229$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 16, 18, 19, 28, 32
$n_{16}624501$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 16, 18, 19, 25, 31
$n_{16}580657$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 16, 18, 19, 20, 31
$n_{15}143434$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 16, 17, 20, 31, 32
$n_{16}92582$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 16, 17, 20, 25, 28
$n_{15}119483$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 16, 17, 19, 20, 32
$n_{15}143746$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 16, 17, 18, 28, 32
$n_{15}11995$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 16, 17, 18, 25, 28
$n_{15}161040$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 18, 25, 28, 32
$n_{15}163295$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 18, 20, 31, 32
$n_{16}679057$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 18, 19, 25, 31
$n_{15}30419$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 18, 19, 25, 28
$n_{15}23225$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 17, 19, 25, 28
$n_{15}122907$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 16, 19, 28, 32
$n_{15}23603$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 16, 18, 25, 28
$n_{16}358558$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 19, 25, 28, 32
$n_{16}459366$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 19, 20, 31, 32
$n_{16}476678$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 19, 20, 28, 31
$n_{16}725845$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 18, 19, 25, 31
$n_{16}668333$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 18, 19, 20, 31
$n_{14}27179$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 17, 18, 20, 32
$n_{14}24763$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 17, 18, 19, 31
$n_{16}428675$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 16, 25, 31, 32
$n_{16}428759$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 16, 20, 31, 32
$n_{16}459448$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 16, 20, 28, 31
$n_{14}27233$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 16, 18, 31, 32
$n_{16}634316$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 16, 18, 25, 31
$n_{15}13465$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 16, 18, 25, 28
$n_{16}517937$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 16, 17, 20, 32
$n_{16}429023$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 16, 17, 18, 20
$n_{15}80794$	6	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 15, 20, 28, 32

Table 9: Unknotting number of some knots

Knot H-T Notation	Unknotting Number	Torus Knot	Minimal Unknotting Crossing Data	Crossing changed
$n16_{613143}$	6	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	12, 16, 18, 19
$n16_{429568}$	6	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	11, 16, 17, 19
$n16_{917298}$	6	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 12, 18, 19
$n16_{523720}$	6	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 12, 17, 19
$n16_{612849}$	6	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 12, 17, 18
$n16_{935396}$	6	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 12, 15, 16
$n16_{931934}$	6	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 12, 14, 16
$n16_{439243}$	6	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 11, 16, 18
$n16_{538551}$	5	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	12, 14, 16, 18, 19
$n15_{30328}$	5	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	12, 14, 16, 17, 18
$n15_{68293}$	5	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	12, 14, 15, 17, 19
$n15_{12266}$	5	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	11, 15, 16, 18, 19
$n15_{41009}$	5	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	11, 15, 16, 17, 19
$n14_{24016}$	5	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	11, 12, 16, 18, 19
$n14_{22361}$	5	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	11, 12, 16, 17, 19
$n14_{6023}$	5	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 12, 16, 17, 19
$n15_{85999}$	5	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 12, 16, 17, 18
$n14_{24778}$	5	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 12, 15, 16, 17
$n14_{24177}$	5	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 11, 15, 18, 19
$n16_{435492}$	5	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 11, 12, 17, 19
$n16_{439259}$	5	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 11, 12, 16, 18
$n14_{22448}$	5	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 11, 12, 15, 19
$n16_{686572}$	5	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 11, 12, 15, 16
$n14_{16872}$	4	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	11, 12, 14, 16, 18, 19
$n14_{10352}$	4	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 11, 12, 16, 18, 19
$n14_{8335}$	4	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 11, 12, 15, 18, 19
$n14_{18417}$	4	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 11, 12, 15, 16, 19
$n14_{18550}$	4	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 11, 12, 15, 16, 18
$n14_{19973}$	4	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 11, 12, 15, 16, 17
$n16_{431707}$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 15, 16, 17, 18, 19
$n16_{553111}$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 14, 18, 20, 26, 28
$n16_{573992}$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 14, 18, 19, 20, 26
$n16_{679234}$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 14, 17, 18, 26, 28
$n16_{679187}$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 14, 17, 18, 19, 26
$n16_{309481}$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 14, 15, 20, 26, 28
$n16_{686806}$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 14, 15, 17, 20, 26
$n16_{603616}$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	16, 17, 18, 19, 26, 28
$n16_{613057}$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	15, 16, 18, 19, 26, 28
$n16_{567117}$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	15, 16, 17, 19, 26, 28
$n14_{27214}$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	15, 16, 17, 19, 20, 28
$n16_{907472}$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	15, 16, 17, 19, 20, 26
$n16_{571236}$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	14, 17, 18, 19, 26, 28
$n16_{686680}$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	14, 16, 18, 19, 26, 28
$n16_{536514}$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	14, 16, 18, 19, 20, 26
$n16_{391940}$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	14, 16, 17, 19, 26, 28
$n14_{24551}$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	12, 14, 18, 19, 20, 26
$n14_{27179}$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	12, 14, 17, 18, 20, 28
$n15_{43833}$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 17, 19, 20, 26, 28
$n15_{41316}$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 17, 18, 20, 26, 28
$n16_{594233}$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 17, 18, 19, 26, 28

Table 10: Unknotting number of some knots

Knot H-T Notation	Unknotting Number	Torus Knot	Minimal Unknotting Crossing Data	Crossing changed
$n16964288$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 14, 15, 17, 18, 26
$n16871491$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 15, 16, 17, 19
$n16556997$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 20, 26, 28
$n16679264$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 17, 18, 26
$n16794697$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 20, 26
$n16375559$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 19, 20
$n16390683$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 16, 17, 19, 26, 28
$n16868659$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 15, 16, 19, 20, 26
$n16873339$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 15, 16, 18, 19, 26
$n16750859$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 14, 16, 18, 26, 28
$n16844110$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 16, 17, 20
$n16783161$	6	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 15, 18, 26
$n1195$	2	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 15, 16, 17, 18, 19, 20, 26, 28
$n1011$	2	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 16, 17, 18, 19, 20, 26, 28
$n1016$	2	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 14, 16, 17, 18, 19, 20, 26, 28
$n11118$	2	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 16, 17, 18, 19, 20, 26, 28
$n1511622$	2	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 15, 16, 17, 19, 20, 26, 28
$n11105$	2	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 14, 16, 17, 18, 19, 26, 28
$n1042$	2	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 14, 15, 16, 17, 19, 26, 28
$n106$	3	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	12, 14, 15, 17, 18, 19, 20, 25, 28, 31, 32
$n1031$	3	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	12, 14, 15, 16, 17, 18, 19, 20, 25, 31, 32
$n107$	3	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	11, 12, 15, 16, 17, 19, 20, 25, 28, 31, 32
$n13631$	3	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	11, 12, 15, 16, 17, 18, 20, 25, 28, 31, 32
$n12750$	3	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	11, 12, 14, 16, 17, 18, 20, 25, 28, 31, 32
$n1022$	3	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 12, 15, 17, 18, 19, 20, 25, 28, 31, 32
$n147841$	3	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 12, 15, 16, 17, 19, 20, 25, 28, 31, 32
$n134116$	3	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 12, 15, 16, 17, 18, 20, 25, 28, 31, 32
$n1193$	3	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 12, 14, 15, 18, 19, 20, 25, 28, 31, 32
$n1511941$	3	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 12, 14, 15, 17, 19, 20, 25, 28, 31, 32
$n12660$	3	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 12, 14, 15, 16, 18, 19, 20, 25, 31, 32
$n147846$	3	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 12, 14, 15, 16, 17, 19, 20, 25, 31, 32
$n146690$	3	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 15, 16, 17, 19, 20, 25, 28, 31, 32
$n12830$	3	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 16, 17, 18, 20, 25, 28, 31, 32
$n12528$	3	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 18, 19, 20, 25, 28, 31, 32
$n148360$	3	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 17, 19, 20, 25, 28, 31, 32
$n13986$	3	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 17, 18, 20, 25, 28, 31, 32
$n1552210$	3	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 15, 16, 17, 19, 20, 25, 31, 32
$a1194$	3	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 16, 18, 19, 20, 25, 31, 32
$a11191$	3	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 15, 18, 19, 20, 25, 31, 32
$a11186$	3	$K(5, 8)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 28, 31, 32	8, 11, 12, 14, 15, 16, 18, 19, 20, 25, 31
$n16404141$	6	$K(4, 7)$	6, 8, 9, 10, 11, 12, 18, 20, 21	8, 11, 20
$n131696$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 15, 16, 17, 18, 19, 20, 26, 28
$n132987$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 15, 16, 18, 19, 20, 26, 28
$n143405$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 15, 16, 17, 19, 20, 26, 28
$n147554$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 15, 16, 17, 18, 19, 26, 28
$n149729$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 16, 18, 19, 20, 26, 28
$n12682$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 16, 17, 19, 20, 26, 28
$n12674$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 16, 17, 18, 20, 26, 28
$n133206$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 16, 17, 18, 19, 26, 28
$n12882$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 16, 17, 18, 19, 20, 26

Table 11: Unknotting number of some knots

Knot H-T Notation	Unknotting Number	Torus Knot	Minimal Unknotting Crossing Data	Crossing changed
$n11_{136}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 18, 19, 20, 26, 28
$n10_8$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 17, 19, 20, 26, 28
$n10_{40}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 17, 18, 19, 26, 28
$n13_{4143}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 16, 18, 19, 26, 28
$n12_{289}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 16, 18, 19, 20, 26
$n13_{915}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	11, 12, 14, 15, 16, 17, 19, 26, 28
$n13_{2102}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 16, 17, 18, 19, 20, 26, 28
$n12_{96}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 15, 16, 17, 19, 20, 26, 28
$n12_{234}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 14, 16, 18, 19, 20, 26, 28
$n13_{588}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 14, 16, 17, 19, 20, 26, 28
$n14_{8330}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 14, 16, 17, 18, 19, 26, 28
$n13_{1779}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 14, 16, 17, 18, 19, 20, 26
$n13_{1907}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 12, 14, 15, 16, 17, 19, 26, 28
$n14_{3478}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 16, 17, 19, 20, 26, 28
$n14_{10290}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 16, 17, 18, 19, 26, 28
$n13_{3034}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 16, 17, 18, 19, 20, 26
$n12_{594}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 15, 18, 19, 20, 26, 28
$n12_{110}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 15, 17, 19, 20, 26, 28
$n10_{13}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 15, 17, 18, 19, 26, 28
$n12_{503}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 15, 16, 18, 19, 26, 28
$n13_{2113}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 15, 16, 17, 18, 26, 28
$n12_{341}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 15, 16, 17, 18, 19, 26
$n15_{12957}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 14, 16, 19, 20, 26, 28
$n15_{49408}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 14, 16, 18, 19, 26, 28
$n14_{13754}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 14, 16, 18, 19, 20, 28
$n15_{73400}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 14, 16, 18, 19, 20, 26
$a11_{227}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 14, 15, 18, 19, 26, 28
$n12_{308}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 14, 15, 18, 19, 20, 26
$n10_{30}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 14, 15, 17, 18, 19, 26
$n13_{3527}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 26, 28	8, 11, 12, 14, 15, 16, 19, 26, 28
$n14_{27326}$	5	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 16, 17, 18, 20
$n16_{606988}$	3	$K(5, 7)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 15, 16, 18, 20
$n14_{24498}$	5	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 12, 16, 19, 20
$n16_{873722}$	5	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 12, 16, 18, 20
$n16_{938383}$	5	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 12, 16, 17, 20
$n16_{935425}$	5	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 12, 15, 16, 20
$n15_{22968}$	5	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 12, 15, 19, 20
$n16_{792631}$	7	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 11, 12
$n16_{997310}$	7	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 14, 15
$n16_{783154}$	7	$K(5, 6)$	8, 11, 12, 14, 15, 16, 17, 18, 19, 20	8, 14, 16
$n16_{521361}$	6	$K(7, 4)$	8, 12, 13, 14, 17, 18, 22, 23, 24	8, 14, 23
$n15_{70447}$	6	$K(7, 4)$	8, 12, 13, 14, 17, 18, 22, 23, 24	8, 14, 17, 23
$n15_{76133}$	6	$K(7, 4)$	8, 12, 13, 14, 17, 18, 22, 23, 24	8, 14, 17, 22
$n14_{10586}$	6	$K(7, 4)$	8, 12, 13, 14, 17, 18, 22, 23, 24	8, 12, 14, 23
$n15_{125225}$	4	$K(7, 4)$	8, 12, 13, 14, 17, 18, 22, 23, 24	8, 14, 22, 23, 24
$n15_{68932}$	4	$K(7, 4)$	8, 12, 13, 14, 17, 18, 22, 23, 24	8, 14, 18, 22, 24
$n15_{18290}$	4	$K(7, 4)$	8, 12, 13, 14, 17, 18, 22, 23, 24	8, 14, 18, 22, 23
$a13_{1073}$	4	$K(7, 4)$	8, 12, 13, 14, 17, 18, 22, 23, 24	8, 14, 17, 22, 23
$a12_{276}$	4	$K(7, 4)$	8, 12, 13, 14, 17, 18, 22, 23, 24	8, 14, 17, 18, 22
$n13_{2710}$	4	$K(7, 4)$	8, 12, 13, 14, 17, 18, 22, 23, 24	8, 13, 14, 22, 23

Table 12: Unknotting number of some knots

Knot H-T Notation	Unknotting Number	Torus Knot	Minimal Unknotting Crossing Data	Crossing changed
$n15_{13342}$	4	$K(7, 4)$	8, 12, 13, 14, 17, 18, 22, 23, 24	8, 12, 14, 22, 24
$n15_{53614}$	4	$K(7, 4)$	8, 12, 13, 14, 17, 18, 22, 23, 24	8, 12, 14, 22, 23
$n15_{69285}$	4	$K(7, 4)$	8, 12, 13, 14, 17, 18, 22, 23, 24	8, 12, 14, 18, 22
$a11_{263}$	4	$K(7, 4)$	8, 12, 13, 14, 17, 18, 22, 23, 24	8, 12, 14, 17, 18
$n16_{184868}$	7	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	22, 23, 28, 29, 30
$n16_{880688}$	7	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	17, 23, 28, 29, 30
$n16_{601875}$	7	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	17, 23, 27, 28, 29
$n16_{921769}$	7	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	17, 19, 23, 24, 29
$n16_{996468}$	7	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 12, 23, 28, 29
$n15_{131593}$	4	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 19, 23, 27, 28, 29, 30
$n14_{8994}$	4	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 19, 23, 24, 27, 29, 30
$a13_{2705}$	4	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 19, 22, 23, 27, 28, 29
$n15_{24391}$	4	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 18, 19, 23, 27, 29, 30
$n14_{19905}$	4	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 18, 19, 23, 27, 28, 29
$n13_{4178}$	4	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 18, 19, 23, 24, 27, 30
$n14_{9225}$	4	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 18, 19, 22, 23, 28, 29
$a13_{3092}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	17, 19, 22, 23, 27, 28, 29
$n16_{175397}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 18, 19, 23, 27, 29, 30
$n15_{24293}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 23, 24, 27, 28, 30
$n16_{513086}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 19, 24, 27, 29, 30
$n15_{25605}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 19, 24, 27, 28, 29
$n14_{5339}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 19, 23, 24, 28, 30
$n16_{431760}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 19, 23, 24, 27, 29
$n16_{301351}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 19, 22, 23, 28, 30
$n16_{444529}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 19, 22, 23, 28, 29
$n16_{431855}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 19, 22, 23, 27, 29
$n15_{14445}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 19, 22, 23, 24, 28
$n14_{20761}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 18, 23, 27, 29, 30
$n15_{24804}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 18, 22, 24, 28, 30
$n16_{281266}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 18, 19, 27, 29, 30
$n16_{320683}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 18, 19, 24, 27, 30
$n15_{133872}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 18, 19, 23, 28, 30
$n16_{258180}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 18, 19, 22, 29, 30
$n15_{15531}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 18, 19, 22, 24, 30
$n16_{553103}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 18, 19, 22, 23, 29
$n16_{561966}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 18, 19, 22, 23, 28
$n14_{17916}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 12, 19, 22, 23, 28, 29
$n13_{981}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 12, 19, 22, 23, 24, 28
$n15_{13123}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 12, 18, 24, 27, 28, 30
$n16_{102142}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 12, 18, 19, 24, 27, 30
$n15_{9534}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 12, 18, 19, 23, 27, 30
$n15_{6144}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 12, 18, 19, 22, 29, 30
$n15_{5190}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 12, 18, 19, 22, 24, 30
$n15_{13551}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 12, 18, 19, 22, 23, 30
$n15_{5951}$	5	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 12, 18, 19, 22, 23, 29
$a13_{4878}$	6	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	17, 22, 23, 27, 28, 29
$n14_{20613}$	6	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	17, 19, 24, 27, 28, 29
$n16_{723250}$	6	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	17, 19, 23, 27, 28, 29
$n16_{473187}$	6	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	17, 19, 23, 24, 27, 29
$n16_{479581}$	6	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	17, 19, 22, 23, 28, 29

Table 13: Unknotting number of some knots

Knot H-T Notation	Unknotting Number	Torus Knot	Minimal Unknotting Crossing Data	Crossing changed
$n16_{581451}$	6	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	17, 19, 22, 23, 27, 29
$n14_{20441}$	6	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	17, 19, 22, 23, 24, 28
$n16_{287959}$	6	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 23, 24, 28, 30
$n16_{346876}$	6	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 22, 23, 29, 30
$n16_{334103}$	6	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 22, 23, 28, 30
$n16_{582083}$	6	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 18, 22, 23, 28, 29
$n16_{675631}$	6	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 22, 23, 24, 29
$n16_{1000335}$	6	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 19, 23, 24, 29
$n16_{1003404}$	6	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 18, 23, 28, 29
$n16_{378485}$	6	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 17, 18, 22, 29, 30
$n16_{510204}$	6	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 12, 19, 24, 27, 29
$n16_{685993}$	6	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 12, 19, 23, 28, 29
$n16_{695732}$	6	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 12, 19, 22, 23, 28
$n16_{378724}$	6	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 12, 18, 19, 24, 27
$n15_{117854}$	6	$K(7, 5)$	7, 12, 17, 18, 19, 22, 23, 24, 27, 28, 29, 30	7, 12, 18, 19, 22, 24
$n16_{992662}$	7	$K(8, 5)$	9, 14, 15, 16, 20, 21, 26, 27, 28, 30, 32, 33, 34, 35	21, 26, 28, 30, 32, 33, 35
$n16_{872760}$	7	$K(8, 5)$	9, 14, 15, 16, 20, 21, 26, 27, 28, 30, 32, 33, 34, 35	21, 26, 27, 30, 32, 33, 35
$n16_{996934}$	7	$K(8, 5)$	9, 14, 15, 16, 20, 21, 26, 27, 28, 30, 32, 33, 34, 35	20, 26, 28, 30, 32, 33, 35
$n16_{993506}$	7	$K(8, 5)$	9, 14, 15, 16, 20, 21, 26, 27, 28, 30, 32, 33, 34, 35	20, 21, 26, 28, 32, 33, 35
$n16_{771177}$	7	$K(8, 5)$	9, 14, 15, 16, 20, 21, 26, 27, 28, 30, 32, 33, 34, 35	20, 21, 26, 27, 32, 34, 35
$n16_{931575}$	7	$K(8, 5)$	9, 14, 15, 16, 20, 21, 26, 27, 28, 30, 32, 33, 34, 35	16, 20, 21, 26, 33, 34, 35
$n16_{1008903}$	7	$K(8, 5)$	9, 14, 15, 16, 20, 21, 26, 27, 28, 30, 32, 33, 34, 35	16, 20, 21, 26, 27, 30, 34
$n16_{992899}$	7	$K(8, 5)$	9, 14, 15, 16, 20, 21, 26, 27, 28, 30, 32, 33, 34, 35	15, 20, 21, 26, 30, 34, 35

Table 14: Unknotting number of some knots using Ascending Method

Knot H-T Notation	Unknotting Number	Torus Knot	Minimal Unknotting Crossing Data	Crossing changed
$n_{15}71340$	4	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	8, 9, 12, 14, 17, 18, 26, 28
$n_{15}40333$	4	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	8, 9, 10, 12, 14, 18, 20, 26
$n_{15}84967$	4	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	6, 10, 12, 14, 18, 20, 26, 28
$n_{16}118207$	4	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	6, 10, 12, 14, 17, 18, 20, 28
$n_{14}13872$	4	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	6, 10, 11, 14, 18, 20, 26, 28
$n_{15}132159$	4	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	6, 10, 11, 12, 14, 18, 26, 28
$n_{14}19890$	4	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	6, 10, 11, 12, 14, 17, 18, 26
$n_{15}94088$	4	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	6, 9, 12, 14, 17, 18, 26, 28
$n_{12}692$	4	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	6, 9, 12, 14, 17, 18, 20, 28
$n_{14}7337$	4	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	6, 9, 11, 14, 17, 18, 26, 28
$n_{15}26288$	4	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	6, 9, 11, 12, 14, 17, 18, 26
$n_{14}16679$	4	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	6, 9, 10, 14, 17, 18, 20, 28
$n_{16}937958$	4	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	6, 9, 10, 11, 14, 17, 18, 26
$n_{12}691$	4	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	6, 8, 9, 11, 12, 17, 18, 26
$n_{16}414054$	5	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	10, 11, 14, 18, 20, 26, 28
$n_{15}94282$	5	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	10, 11, 14, 17, 18, 20, 28
$n_{14}15113$	5	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	10, 11, 12, 14, 20, 26, 28
$n_{14}7507$	5	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	9, 12, 14, 17, 18, 20, 28
$n_{14}21717$	5	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	9, 11, 14, 17, 18, 26, 28
$n_{14}19984$	5	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	9, 11, 12, 14, 18, 26, 28
$n_{14}20750$	5	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	9, 11, 12, 14, 17, 18, 26
$n_{16}392064$	5	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	9, 10, 11, 14, 18, 20, 26
$n_{14}7543$	5	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	8, 10, 12, 17, 18, 20, 26
$n_{15}105916$	5	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	8, 10, 11, 14, 18, 20, 28
$n_{16}551736$	5	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	8, 9, 12, 17, 18, 26, 28
$n_{15}5788$	5	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	8, 9, 11, 17, 18, 26, 28
$n_{15}147998$	5	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	8, 9, 10, 11, 18, 26, 28
$n_{15}101733$	5	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	8, 9, 10, 11, 14, 18, 26
$n_{16}446009$	5	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	6, 10, 12, 17, 18, 20, 26
$n_{16}624778$	5	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	6, 10, 11, 14, 18, 20, 28
$n_{16}604381$	5	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	6, 10, 11, 14, 17, 18, 28
$n_{15}45626$	5	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	6, 10, 11, 12, 14, 18, 20
$n_{16}600382$	5	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	6, 9, 14, 17, 18, 26, 28
$n_{15}120926$	5	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	6, 9, 11, 12, 17, 18, 26
$n_{16}843750$	6	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	8, 9, 12, 17, 20, 28
$n_{13}2306$	3	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	6, 8, 10, 12, 14, 18, 20, 26, 28
$n_{15}40447$	3	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	6, 8, 10, 12, 14, 17, 18, 26, 28
$n_{12}177$	3	$K(5, 7)$	6, 8, 9, 10, 11, 12, 14, 17, 18, 20, 26, 28	6, 9, 10, 12, 14, 17, 18, 20, 28
$n_{15}61738$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	11, 12, 17, 21, 23, 24, 27, 29
$n_{15}119589$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	11, 12, 17, 19, 21, 24, 27, 29
$n_{15}120820$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	11, 12, 17, 19, 21, 22, 27, 29
$n_{15}119134$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	9, 17, 21, 22, 23, 24, 27, 29
$n_{15}100371$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	9, 17, 19, 21, 23, 24, 27, 29
$n_{15}99547$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	9, 17, 19, 22, 23, 24, 27, 29
$n_{15}76293$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	9, 17, 19, 21, 22, 23, 24, 27
$n_{14}2562$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	9, 12, 19, 21, 22, 23, 27, 29
$n_{16}710915$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	9, 12, 17, 19, 21, 23, 27, 29
$n_{14}8961$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	9, 12, 17, 19, 21, 22, 23, 29
$n_{15}101446$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	9, 11, 19, 22, 23, 24, 27, 29
$n_{15}120693$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	9, 11, 19, 21, 23, 24, 27, 29

Table 15: Unknotting number of some knots using Ascending Method

Knot H-T Notation	Unknotting Number	Torus Knot	Minimal Unknotting Crossing Data	Crossing changed
$n_{15}120853$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	9, 11, 12, 19, 21, 24, 27, 29
$n_{14}1442$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	9, 11, 12, 19, 21, 22, 27, 29
$n_{16}682873$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	9, 11, 12, 19, 21, 22, 23, 29
$n_{16}717859$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	9, 11, 12, 17, 19, 24, 27, 29
$n_{15}119295$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	9, 11, 12, 17, 19, 21, 24, 27
$n_{14}19825$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	9, 11, 12, 17, 19, 21, 22, 29
$n_{16}134201$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 11, 12, 19, 21, 24, 27, 29
$n_{15}121961$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 11, 19, 21, 23, 24, 27, 29
$n_{16}244726$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 17, 19, 23, 24, 27, 29
$n_{14}5004$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 19, 21, 22, 23, 27, 29
$n_{15}99772$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 17, 19, 22, 23, 27, 29
$n_{15}120747$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 17, 19, 22, 23, 24, 29
$n_{16}136854$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 17, 19, 21, 24, 27, 29
$n_{15}55527$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 17, 19, 21, 23, 24, 27
$n_{14}11371$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 17, 19, 21, 22, 23, 27
$n_{16}360302$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 12, 17, 19, 23, 27, 29
$n_{16}700448$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 12, 17, 19, 21, 23, 29
$n_{14}19849$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 11, 19, 23, 24, 27, 29
$n_{14}6047$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 11, 19, 21, 24, 27, 29
$n_{16}680050$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 11, 19, 21, 23, 27, 29
$n_{14}20630$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 11, 19, 21, 22, 27, 29
$n_{16}682817$	4	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 11, 19, 21, 22, 23, 29
$n_{16}308989$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	9, 12, 17, 19, 22, 23, 29
$n_{14}8960$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 22, 23, 24, 27, 29
$n_{14}8811$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 19, 23, 24, 27, 29
$n_{15}110364$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 19, 22, 23, 27, 29
$n_{16}112863$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 17, 22, 24, 27, 29
$n_{16}560736$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 17, 22, 23, 24, 27
$n_{16}513241$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 17, 19, 22, 27, 29
$n_{14}1432$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 12, 19, 22, 23, 29
$n_{14}9219$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 11, 12, 19, 24, 27, 29
$n_{16}113593$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 17, 19, 21, 22, 23, 27
$n_{15}97029$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	9, 11, 12, 17, 19, 27, 29
$n_{14}17564$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 11, 22, 23, 24, 29
$n_{16}683192$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 11, 19, 24, 27, 29
$n_{16}751177$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 11, 19, 22, 27, 29
$n_{16}676850$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 11, 17, 19, 22, 27
$n_{14}1438$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 11, 19, 22, 24, 27
$n_{14}6026$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 11, 12, 19, 27, 29
$n_{16}672766$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	9, 19, 21, 22, 23, 27, 29
$n_{14}5883$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 21, 22, 24, 27, 29
$n_{14}6046$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 19, 21, 24, 27, 29
$n_{16}679743$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 19, 21, 23, 27, 29
$n_{14}20622$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 19, 21, 22, 27, 29
$n_{14}18290$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 19, 21, 22, 23, 27
$n_{14}5644$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 12, 19, 21, 24, 27
$n_{16}682869$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	9, 11, 12, 19, 21, 22, 29
$n_{16}726371$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	9, 11, 12, 17, 19, 21, 29
$n_{16}803985$	5	$K(7, 5)$	7, 9, 11, 12, 17, 18, 21, 22, 23, 24, 27, 29	7, 9, 11, 19, 21, 27, 29