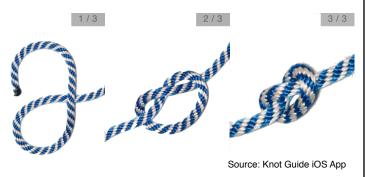
# **Useful Knots**

#### Overhand Knot

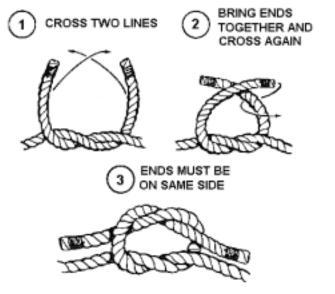
**About:** This is the simplest of all knots and is used over and over to build other knots. Perhaps surprisingly, it is one of the safest ways to attach two ropes together by taking them in parallel and simply tying one or two overhand knots in them. **How:** Form a loop a short distance from the end. Pass the loose end of the rope through the loop, and pull tight.



# Square (Reef) Knot

**About:** A very insecure way to connect two loose ends. It is only appropriate for non-critical use as it will "capsize" or jam under a load and will untie itself under movement. Still it is fast and easy. Misused reef knots have caused more deaths and injuries than all other knots combined (*Ashley Book of Knots*). Two common "mis-tyings" are called Granny Knot and Thief's Knot, which are even more insecure.

**How:** Take the two ends. Cross them over and tie the first half knot (half hitch). Maintain the same rope on top as you cross them over a second time to tie the second half hitch. Pull the ends evenly to form a symmetrical Square Knot. Add extra half hitches for safety.



Source: SafetyRescue.net

#### **Bowline**

"King of Knots"

**About:** This knot is easy to tie and easy to untie. If you only learn one new knot, learn this one. It can work loose when not under a load, so for safety-critical situations, other loops such as the Figure Eight are more appropriate.

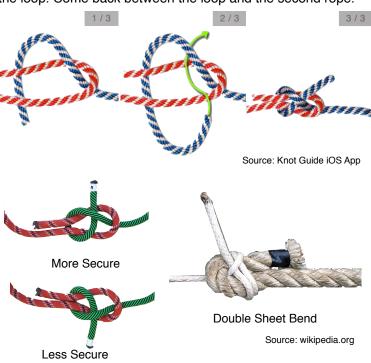
**How:** Form a loop a short distance from the end - allow for the size of the loop and the knot itself. Pass the end of the rope through the loop as though making a simple knot (a half-hitch). Pull the end through, then round the standing end, and then back through the loop to finish the Bowline.



Source: Knot Guide iOS App

#### **Sheet Bend**

**About:** This knot ties two ropes together (a "bend"). It is basically a bowline made of two ropes. There are variations, and some are more appropriate for different or same sized ropes, but the basic sheet bend is useful in many situations. **How to:** Form a loop in one rope. Pass the end of the second rope through the loop. Wrap around both strands of the loop. Come back between the loop and the second rope.



A PDF of this document is available at blog.iharder.net/knots

### Alpine Butterfly

**About:** This is an easy to tie and untie loop that goes in the middle of a rope. The ends of the rope can be attached or otherwise unavailable, and you can still tie this knot.

**How to:** Wrap the rope around your hand. At the end of turn one, position the rope close to your fingertips. Continue round and complete turn two back near your thumb. Pick up the turn near your fingertips. Wrap it round the other two turns. Pull it through and tighten by pulling on the loop and the ends.

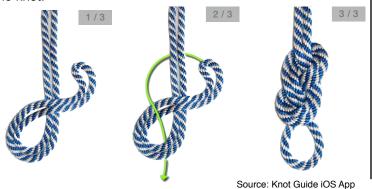


Figure Eight Source: Knot Guide iOS App

**About:** This is a very secure knot but can be difficult to untie after a load has been placed on it. This should be used in place of a bowline in safety-critical situations.

**How to:** Form a bight by folding one end of a rope over. Wrap the bight around the standing end of the rope and then through the loop.

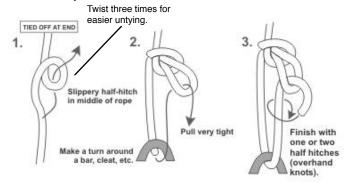
**Alternate:** You can tie a figure eight around an anchor object by first loosely tying a figure eight knot with a single strand of the rope (instead of the folded over rope). After passing the free end around the anchor, thread the free end back through the knot following the path of the free end that "came out of" the knot.



#### Trucker's Hitch

**About:** The Trucker's Hitch, in its many variations, provides a mechanical advantage often used to tighten a load. A loop in the rope acts as a pulley. This eventually wears out a rope but fits an essential need of tightening a rope beyond one's normal strength.

How to: Form a bight and twist it three half-turns. Reach through the bight, and pull another bight from the free end back through, forming a loop. This is the pulley. Wrap the free end around an anchor point (such as a tie-down point on your truck), and feed the free end through the loop (the pulley). Pull tight. To secure the end, pinch the "pulley," and make either two half hitches, or if your rope has enough surface area and friction, do a "half hitch on a bight" which allows you to simply pull the free end when it is time to untie the knot. Variations: Instead of twisting three half-turns, try making an Alpine Butterfly to act as the pulley. Try a tautline or rolling hitch to tie it off. If you use a half-hitch on a bight, try passing the free end through that loop so that a floppy free end doesn't untie your knot.



Source: NetKnots.com

## Kalmyk

**About:** This knot is almost unheard of outside of Russia. It is an "exploding knot" loop that unties easily (even better than a bowline) when you pull on the free end.

**How to:** Wrap the rope around your anchor object and form a loop "facing inside" with the standing end on the "bottom." Insert the free end through the loop from the top to the bottom. Form a bight with the free end. Feed the bight back over all the elements of the knot except the standing end. The bight passes under the standing end. Tighten the knot.

