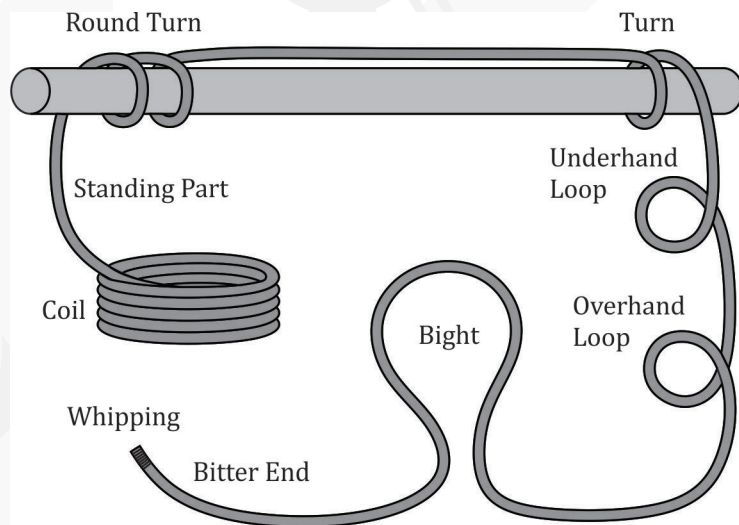


Knots, Hitches and Bends

It is hard to define clearly the terms knot, hitch and bend because their functions overlap. However, the terms may be generally defined as follows:

- Knots* Knots are used to form eyes, or to secure a cord or rope around an object. In other words, the line is bent to itself.
- Hitches* Hitches are used to bend a rope to or around an object, such as a ring, spar, or stanchion.
- Bends* Bends are used to secure two lines together.



Elements of Knots, Bends and Hitches

Overhand Knot or Thumb Knot

This is the simplest knot, used to make a handheld on a rope, or to prevent a rope running through a pulley or hole. The overhand knot is also used for temporary joining two or more lines together.



Overhand



Overhand joining two ropes

Reef Knot or Square Knot

The Reef knot or Square Knot is the most useful knot: strong, and easily tied and untied. It is used to tie ends of the rope together, particularly used when reefing the sail. It is not recommended for joining two ropes of different sizes. When tying this knot, remember the rhyme "right over left, then left over right" or "left over right, then right over left" to avoid mistakenly tying a Granny Knot (Lubber's Knot) which slips easily under load and should never be used. Another knot, known as the Thief Knot, is similar to the Reef Knot except that the standing parts or two ends are on opposite sides of the knot. This knot is also unsafe to use, since it will slip under load. The Reef Knot can be tied as a slip knot, which can be released quickly such as when shaking out the reef of sail.

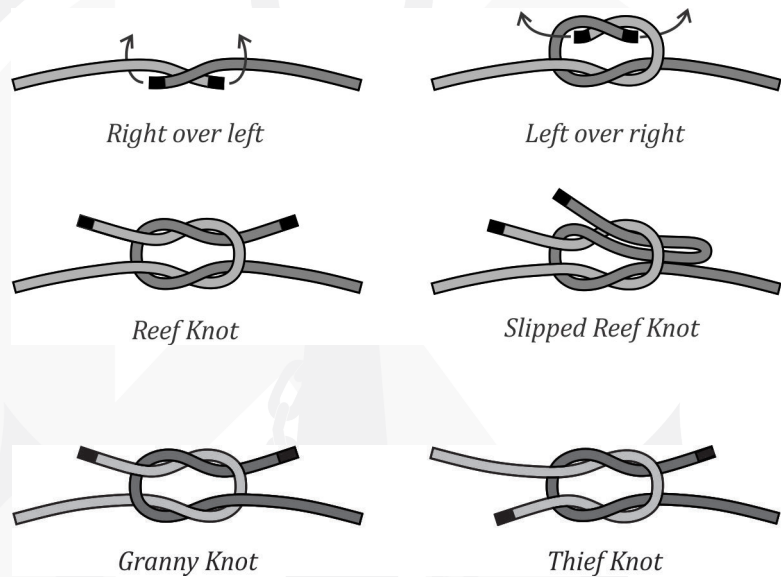


Figure-of-Eight or Flemish Knot

The figure-of-eight knot can form a larger knot than the overhand with the same size of rope. It is considered as a "stopper knot", used to prevent the rope pulling through a hole or slipping through the loop of another rope.

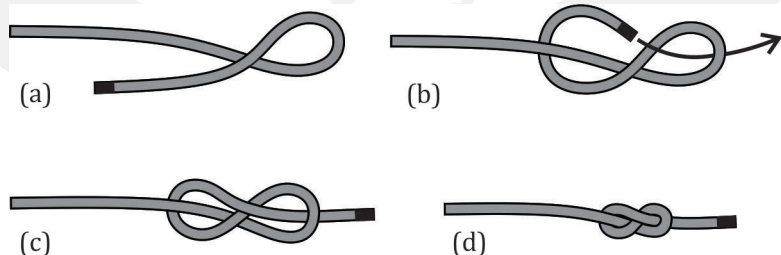
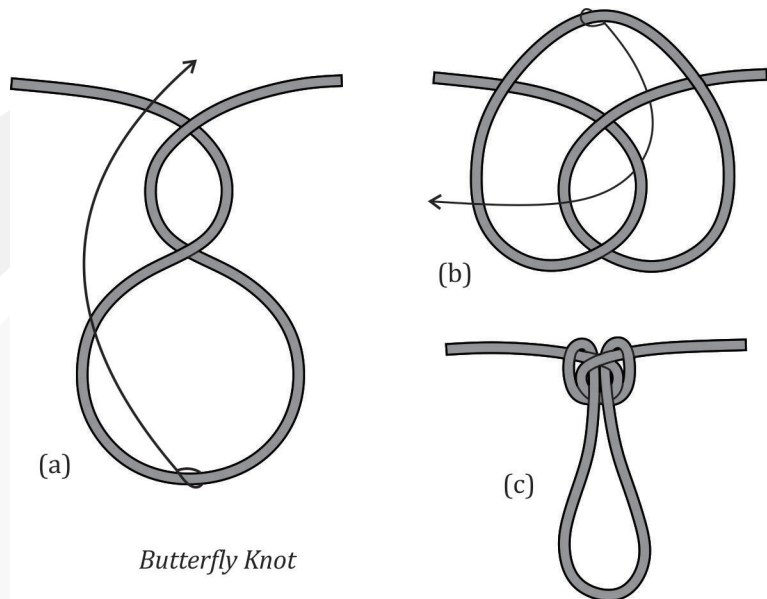
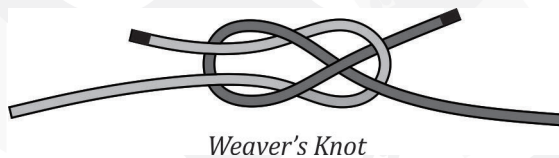


Figure-of-Eight

Butterfly Knot The Butterfly knot is used to make a single loop along the rope, such as for a rescue line or rigging for three way pulling. It is easy to tie and better than the Figure Eight on the Bight. It is also strong and easy to untie with synthetic rope, but hard to untie with natural rope, especially when wet.



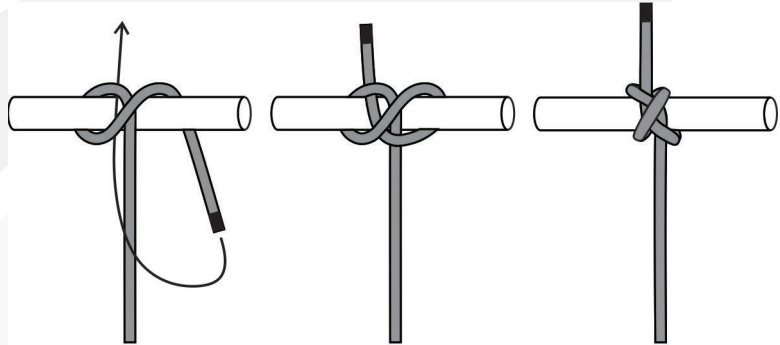
Weaver's Knot The Weaver's knot is similar to the Sheet Bend; however, the Sheet Bend is used to join two ropes, whereas the Weaver's Knot is used to tie the ends of thread together because this knot can pass smoothly through the needle. It is more useful in joining small lines, or twine, than for rope; for thread, it is without doubt the best knot known.



Fisherman's Eye Knot The Fisherman's Eye Knot is also known as the Middleman's Knot. It is a good eye-type knot, very strong under strain.



Constrictor Knot The Constrictor Knot is often considered the best and most secure of all of the binding type of knots. It is used to tie a smaller rope to a larger one, or to tie a rope to a stake or pole. It is a nonslip knot and very difficult to untie, so it is sometimes used as a substitute for whipping; or as a lashing for light construction; or as a hose clamp. The Constrictor Knot consists of a clove hitch with a half knot under the cross-point. Start similarly to the Clove Hitch, but bring the end of the rope back through the first turn; then pull both ends to secure the knot.



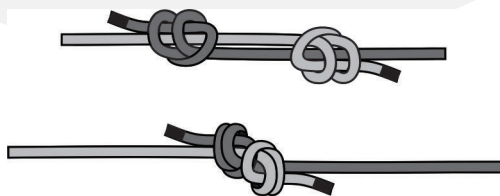
Constrictor Knot

Fisherman's Knot The Fisherman's Knot has other names, such as the Water Knot, the Angler's Knot, the English Knot, the Englishman's Knot, the True Lover's Knot or the Waterman's Knot. The Fisherman's Knot is used to join two ropes of similar size together. It can be difficult to untie under strain. Due to its purpose, it should be considered a bend rather than a knot. The Fisherman's Knot is formed by tying one end of the rope with an Overhand Knot. Turn it over and once again tie an Overhand Knot around the other end of the rope. Pull the two standing parts to set the knot as follows:



Fisherman Knot

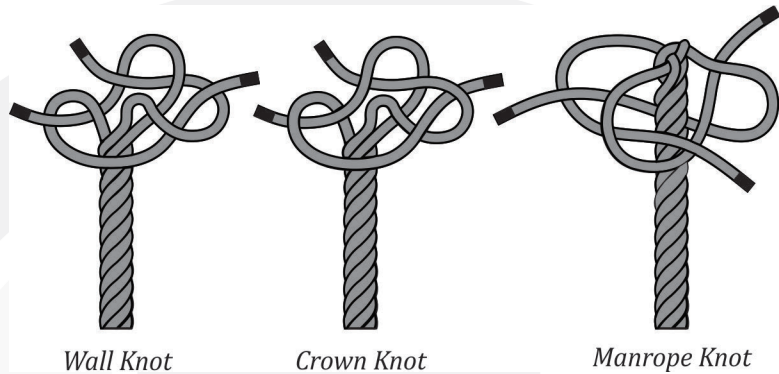
For more security with greater strength, the Double Fisherman's Knot is preferred, using Double Overhand Knots instead of Overhand Knots. The Double Fisherman's Knot is sometimes referred as the Grapevine Knot or the Double English Knot.



Double Fisherman's Knot

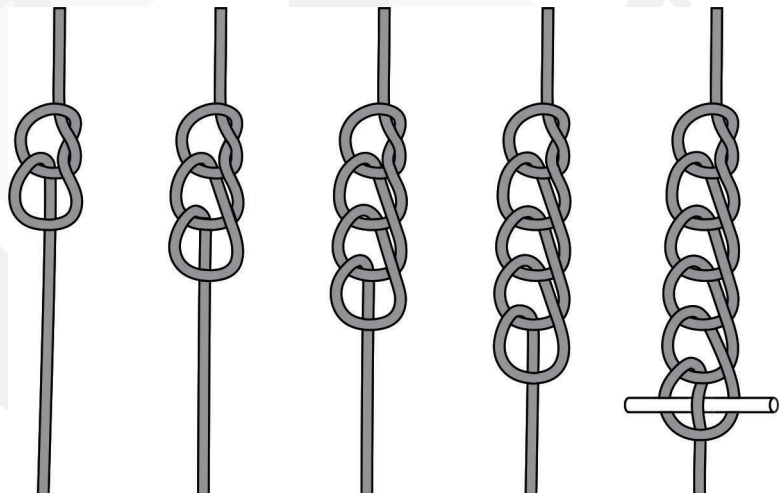
Wall Knot & Crown Knot

These knots are used to close an end of the rope to prevent it from coming loose. The Wall Knot and Crown Knot can be made together in different combinations, e.g., starting with one Wall Knot then following one Crown Knot, or Two Wall Knots following a Crown Knot. The combination of a Crown Knot first then the Wall Knot made underneath is known as the **Manrope Knot**.

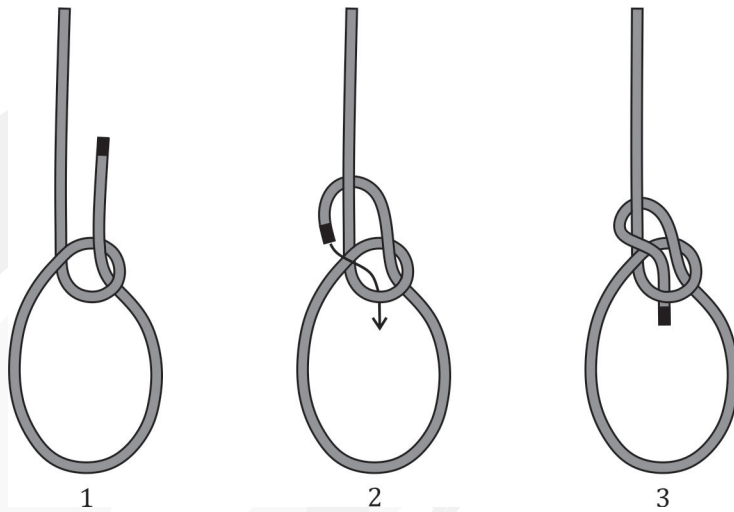


Chain Knot

The Chain Knot is also known as the Single Plait. It is used to shorten the rope by first making a running loop, then pulling a bight of the rope through the loop; the bight becomes a new loop. Draw another bight through the new loop. Keep repeating the procedure until the rope is shortened to the desired length; slide a stick through the last loop to lock it. It is a quick release knot, untied by just pulling out the stick and pulling on the end.

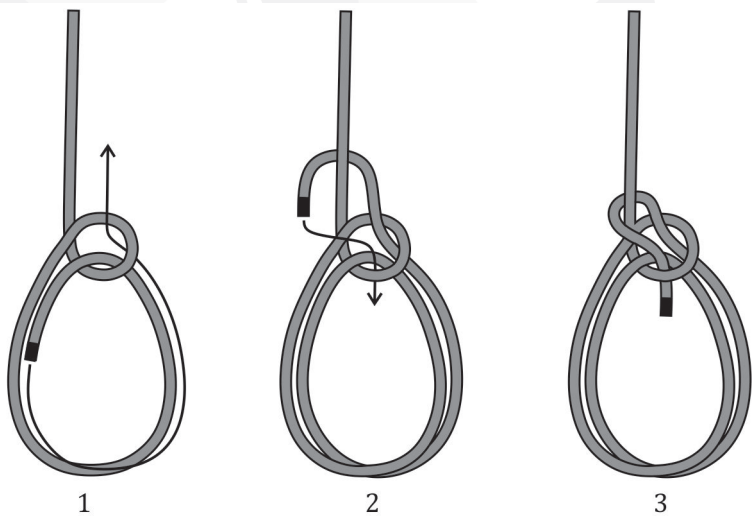


Bowline This is the most useful eye knot. It is used to make a fixed-size loop in a line quickly, is easily tied and will never slip. The bowline is tied by forming a loop in the standing part and passing the end through this loop, around the standing part above it, then back through the loop.



French Bowline, or Portuguese Bowline

This is another variation of the basic bowline which can create two or more loops. In a French Bowline, the loops can change sizes, but one gets bigger while the other gets smaller.



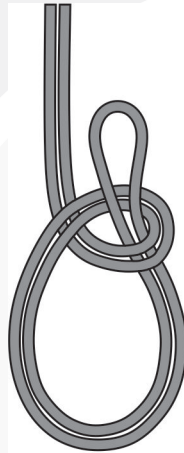
French or Portuguese Bowline

Bowline on a Bight

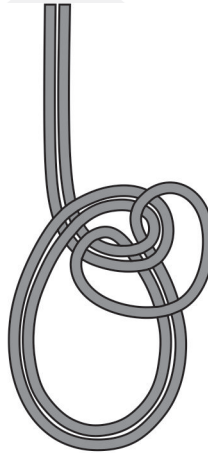
The Bowline on a Bight is a strong loop, easy to make and very useful as a sling for barrels, or as a seat for a man working over the side. It is also a good loop for use in man overboard rescue.

Steps for making a Bowline on a Bight

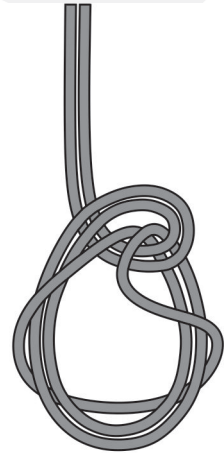
1. Create a small loop in a doubled rope, and bring the end of the doubled rope up through the small loop; this will create two big loops (a);
2. Open up the end of the doubled rope and bring it down and around over the two big loops (b) and (c);



(a)

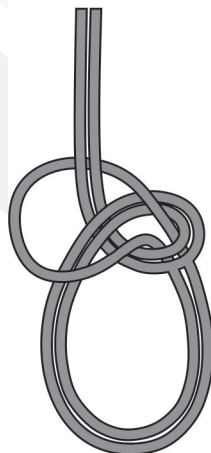


(b)

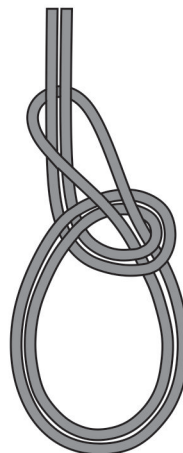


(c)

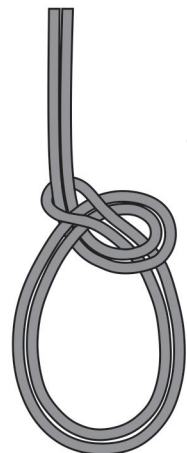
3. Continue bringing the end of the doubled rope up above the small initial loop (d);
4. Pull the standing part and set the knot. It will look like a Double-Knotted Bowline, but with two loops instead of only one (e) and (f).



(d)



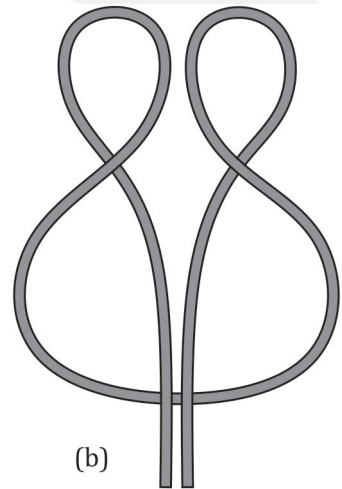
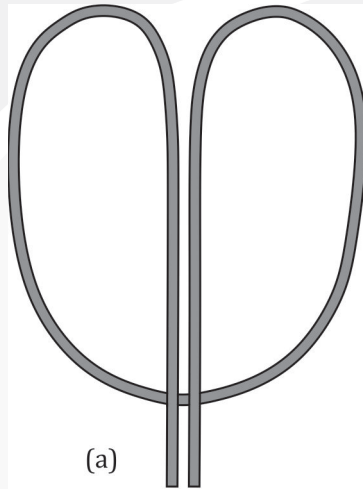
(e)



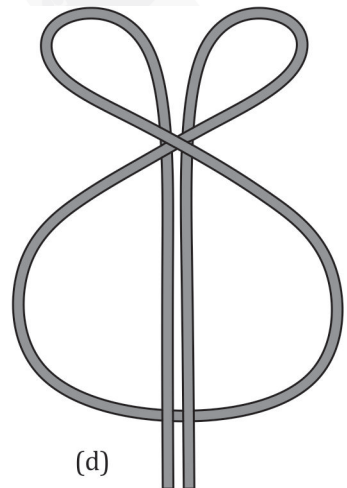
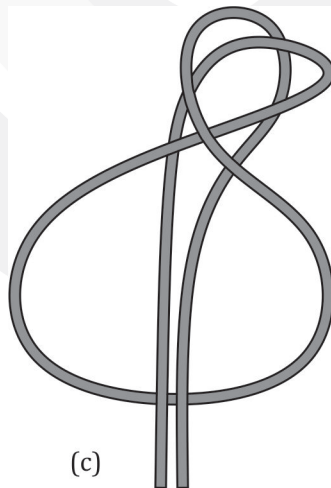
(f)

Spanish Bowline This is a method for making two loops in a rope, especially when there is no access to the ends of the rope. The steps for making a Spanish Bowline are as follows:

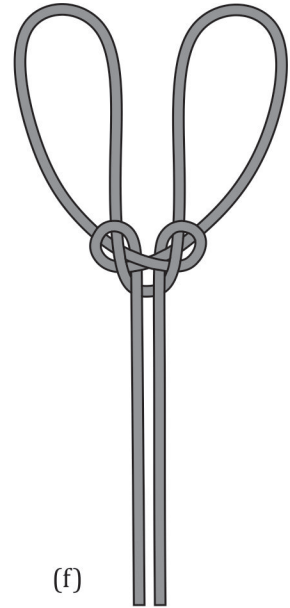
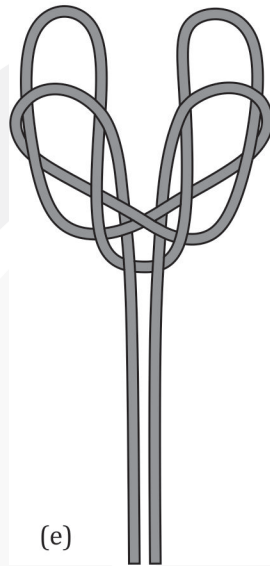
1. Double the rope to create a large bight (an open loop), then bring the end of the bight back behind the main part of the rope to create two loops (a);
2. Give each loop a twist (b);



3. Take the loop on the left and move it over to the right inside of the loop on the right (c).
4. There are 4 loops showing as below in figure (d) below;



5. Bring two bottom loops and put them through two upper loops (e);
6. Pull the bottom two tight, and they will become the two main loops of the bowline (f).



Water Bowline

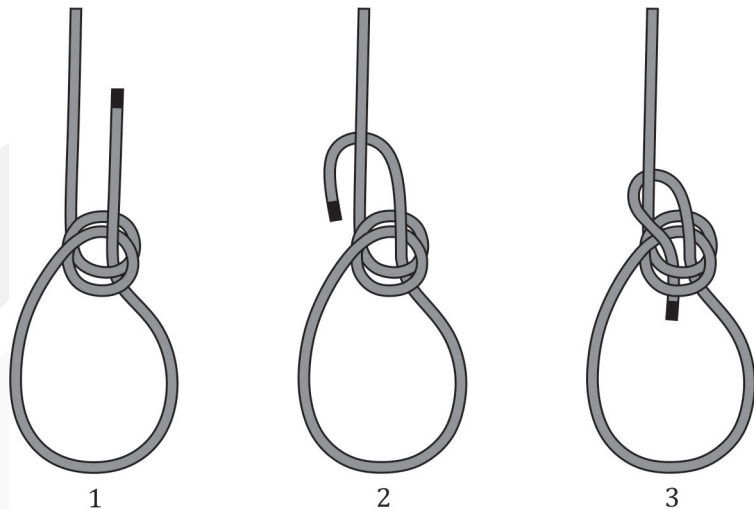
The Water Bowline is the same as the basic bowline, but with a second small loop, through which the end of the rope is passed to add more security to the bowline. It is called the Water Bowline because it is less likely to jam when wet.



Water Bowline

**Double-Knotted
Bowline,
or Double Bowline,
or Round Turn
Bowline**

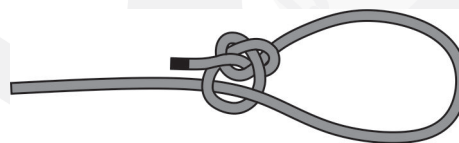
This knot is made similarly to the basic bowline, except that a second small loop (an extra turn) is added to give more holding strength.



Double-Knotted Bowline

Running Bowline

A “Running Bowline” is merely a Bowline with the standing part passed through the loop so the Running Bowline can be made by just tying a Bowline in the usual way, but first passing the rope around the standing part. This knot is useful for getting a secure knot to lock around an item that has to be lifted, or pulled from a remote location.

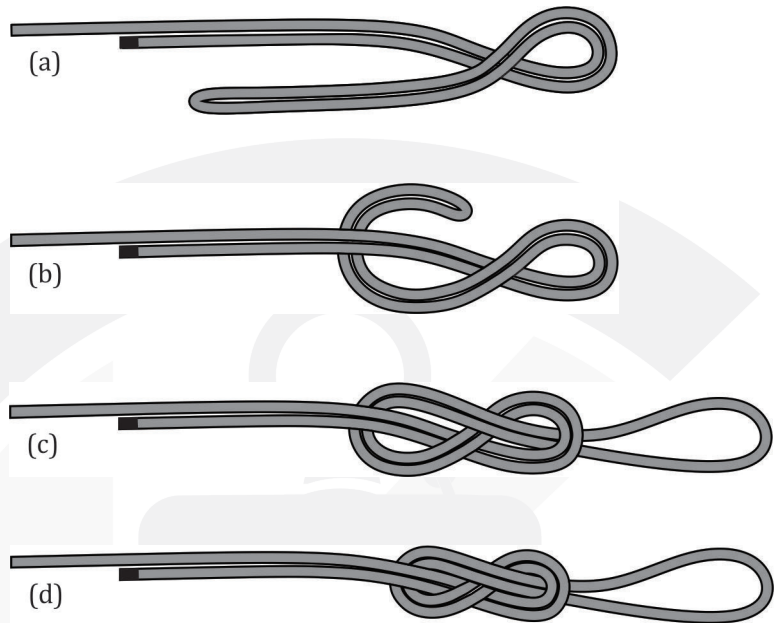


Running Bowline

**Figure-of-Eight on
the Bight or Flemish
Loop**

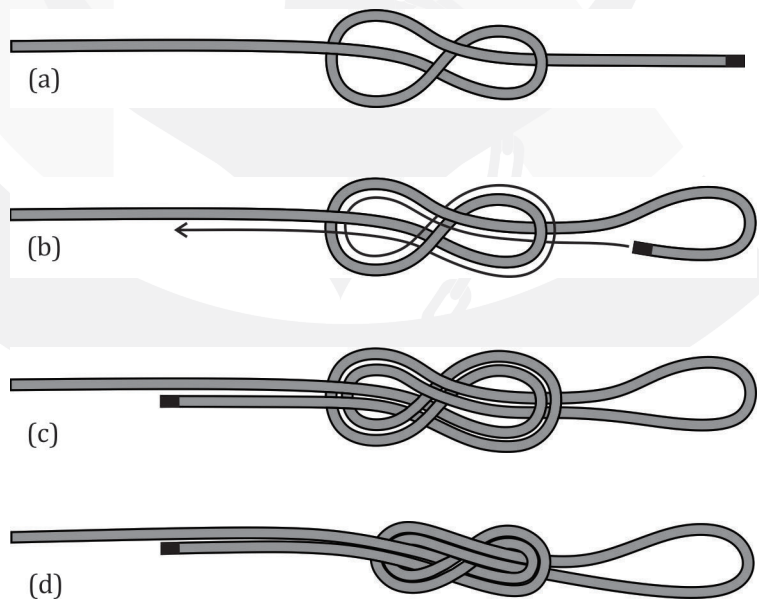
The Figure Eight on the Bight or Flemish Loop, also known as Double Figure Eight, is often used to make a single loop in the end of a rope, or to make a loop some way along the rope, particularly for fixing the anchor point for a rescue line. It can be rigged as three ways pulling. It is strong and easy to untie with synthetic rope, but hard to untie with natural rope. The Figure Eight on the Bight can be tied in two ways, as follow:

1. Double the end of the rope, then tie a Figure-of-Eight knot with the doubled loop.

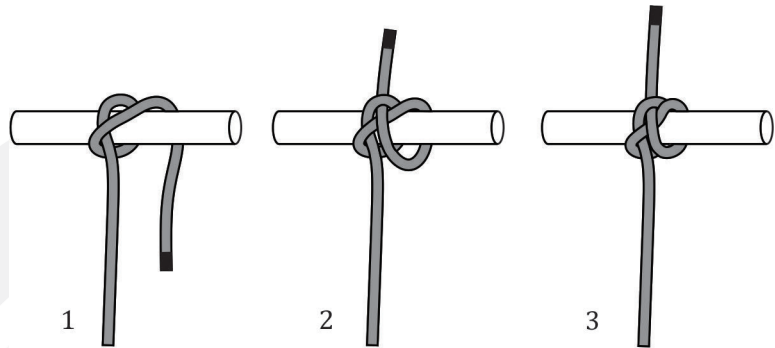


2. Start with a single thickness of rope, then reave the end back along itself to double the original knot. The second method is used when the loop goes through a spar or a fixed ring.

For more securing, the end can be tied of around the standing part of the rope with a single or double Overhand Knot.



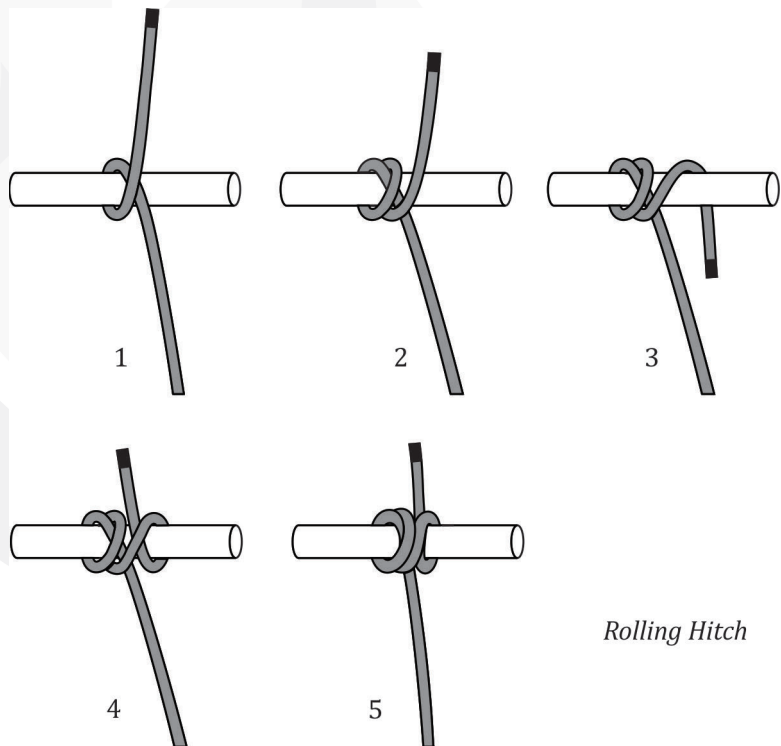
Spar Hitch This hitch is used to tie a line to a pole, spar, or railing. It will not slip easily because it is locking by itself under strain. It is made as a Clove Hitch, but instead of passing the end of the rope under the last turn, go over the last turn and under the first turn.



Spar Hitch

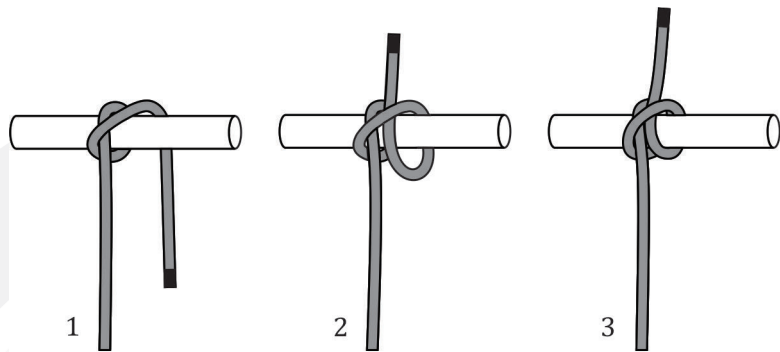
**Rolling Hitch,
or Magnus and
Magner's Hitch**

The rolling hitch is a modified clove hitch. It is a popular hitch used to secure a weight to a pole, or if a pull is to be made along the length of a spar. The jamming of the double turn under the hauling parts makes it hard for the knot to slip.



Rolling Hitch

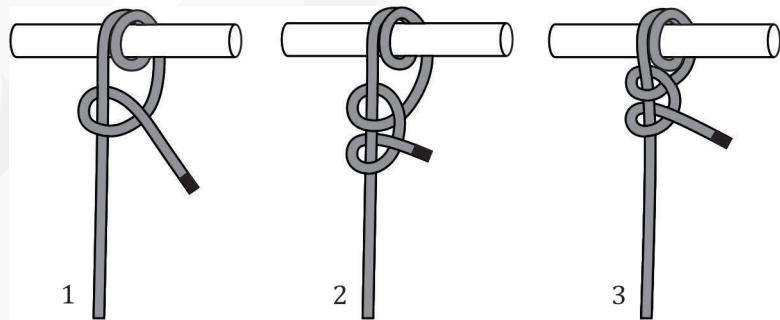
Clove Hitch This hitch is used to tie a line to a pole, spar, or railing. It will not slip easily because the second half hitch rides over the standing part. It will hold as long as there is a strain on it. It can be made more secure with half hitches to lock it up.



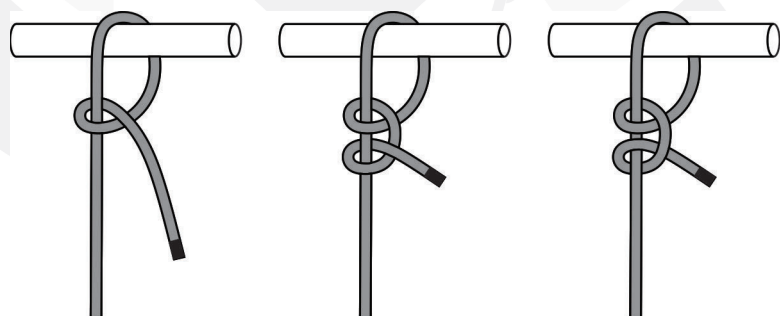
Clove Hitch

Round Turn and Two Half Hitches

This knot is used to tie a line to a pole, such as a coiled heaving line hanging in the bosun's store, or to bend the end of a rope to a spar, stanchion, bollard, or ring.



Round Turn and Two Half Hitches



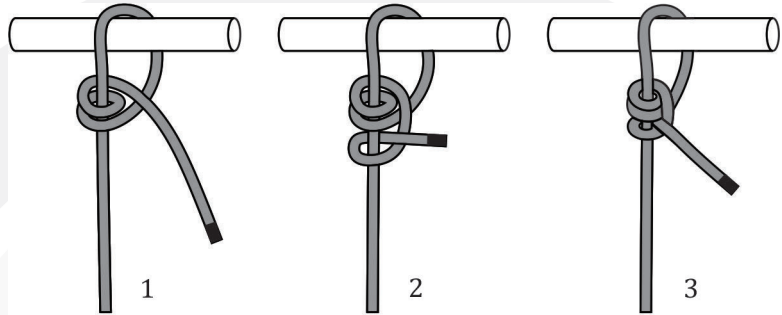
Half Hitch

Two Half Hitch

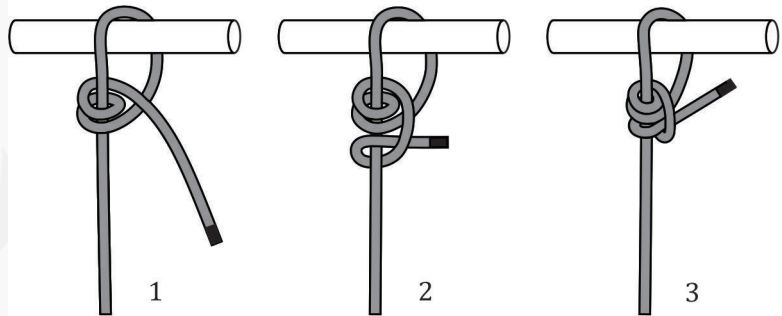
Reversed Half Hitches

**Midshipman's Hitch
or Tautline Hitch**

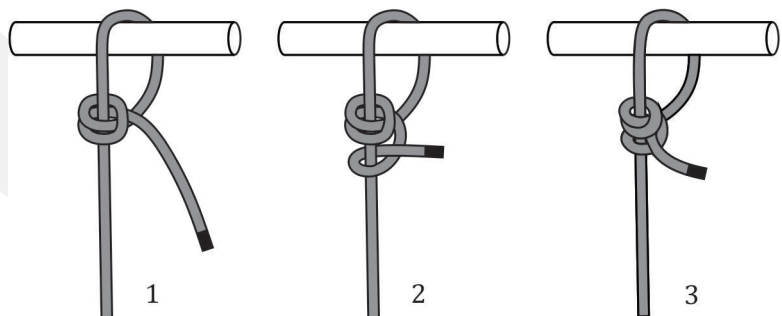
This hitch is really just an adjustable loop or slide-and-grip knot. It is used to attach a line to a pole but is not very secure, especially with a slippery type of rope, so it should not be used for critical tasks. There are a few methods for tying this knot, and all serve the same purpose. Method 3 is most commonly referred to as a Midshipman's Hitch.



Midshipman's Hitch - Method 1



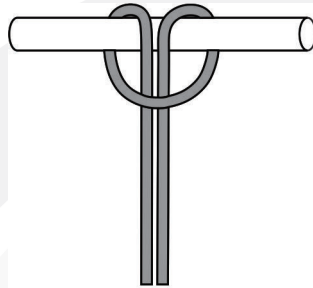
Midshipman's Hitch - Method 2



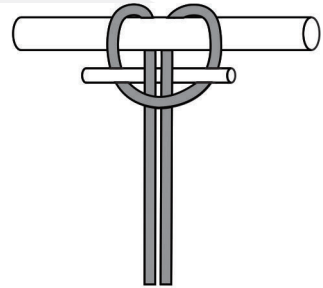
Midshipman's Hitch - Method 3

Lark's Head or Cow Hitch

These knots are another quick way of securing a line to a ring or pole, and are more secure than the Slippery Ring Knot. The Single Lark's Head is often used to hold a wire rope when constructing a chain stopper. If both ends of the line are already attached to something, then the Lark's Head Hitch can be constructed by using an object as a toggle.



Lark's Head



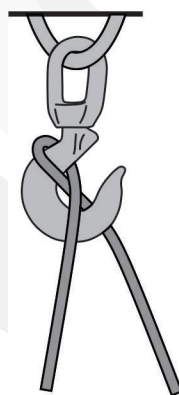
Lark's Head with Toggle

Blackwall Hitch and Double Blackwall Hitch

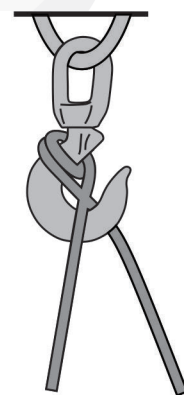
This hitch provides a quick and simple way to attach the rope to a hook by passing the end of the rope under the standing part and across the hook, so that when the standing part takes the weight, the end of the rope is jammed against the hook.

Making a Blackwall Hitch

1. Form a bight at the end of a rope.
2. Put the hook of a tackle through the bight so that the end of the rope may be jammed between the standing part and the back of the hook

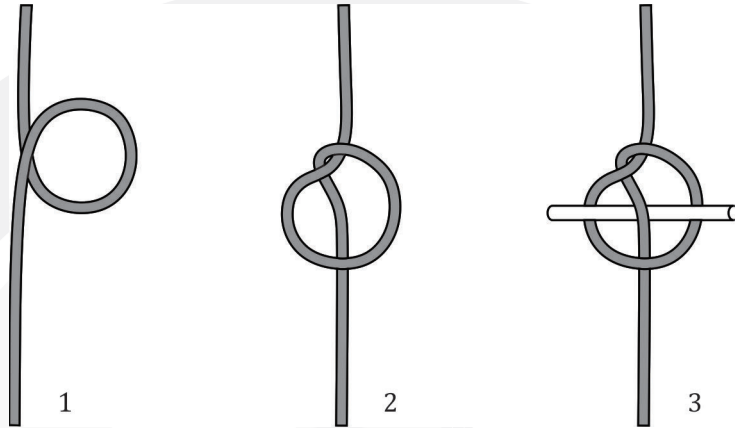


Blackwall Hitch



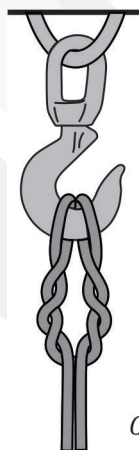
Double Blackwall Hitch

Marlinspike Hitch This hitch is used only as a temporary knot for attaching a line to a log or spar. It is very handy when using a spike in order to get a good grip. It is also used to construct a stage when a board of wood is used instead of a log, spar or spike. This hitch is simply made by making a loop (1), bringing the loop over the rope as shown in (2), then putting a spike or toggle through the knot (3).

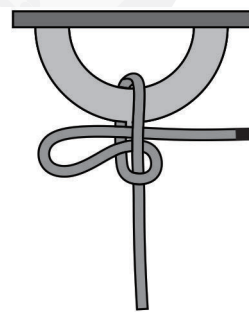


Catspaw This is a temporary loop for attaching a line to a hook by forming two bights on the rope, then twisting and slipping it over the hook in order to shorten a sling strop. This hitch is very convenient and secure, and assumes a hold for a steady pull.

Slippery Knot This is a quick knot for securing a line to a ring or pole.

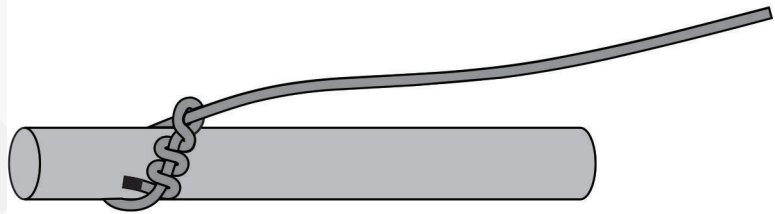
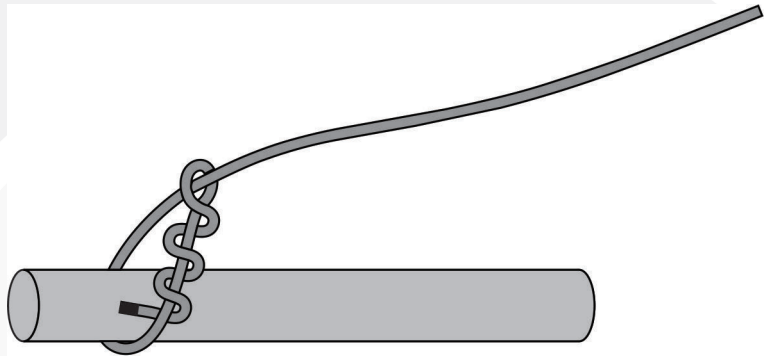


Catspaw

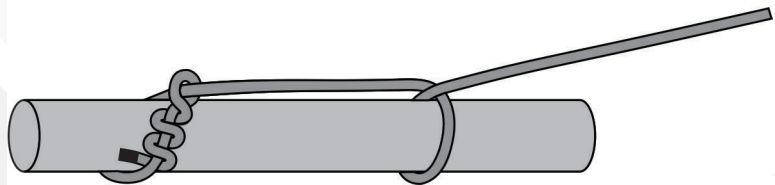


Slippery Knot

Timber Hitch This hitch is used to attach a line to a log or spar for hauling. It is easily made by passing the end of a rope around the spar or log, round the standing part of the rope, then twisting it three or more times around, under and over itself. One or a few single half-hitches can be added along the spar so the direction in which the spar is laying can be controlled when pulling along.

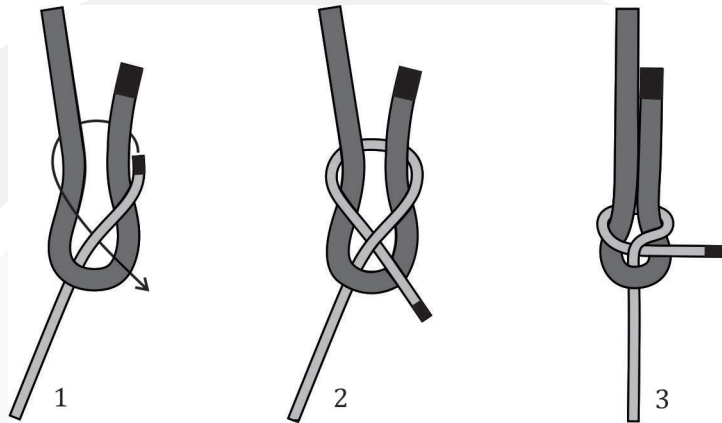


Timber Hitch



Timber Hitch with a Half Hitch

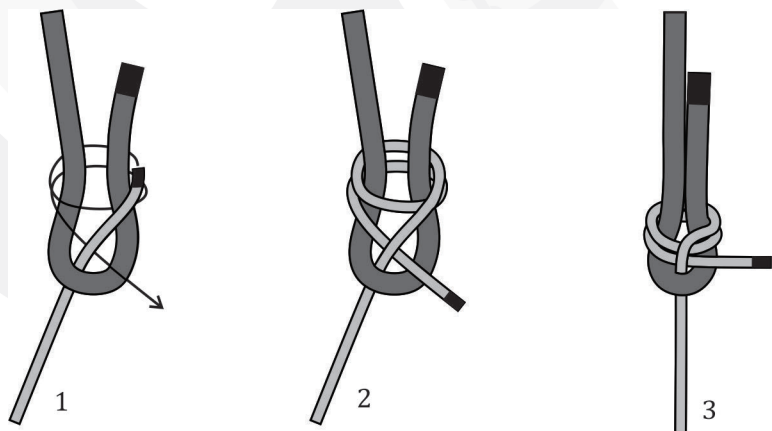
Sheet Bend This bend is ideal for joining two ropes of different thicknesses together, as long as the thinner line is the one that wraps around the thicker one. It is good when using a light heaving line to pass a heavier tow line to a boat, or a mooring line to shore. When used to tie one line to an eye-splice or a metal ring, it is called a Becket Bend on a Bight.



Single Sheet Bend

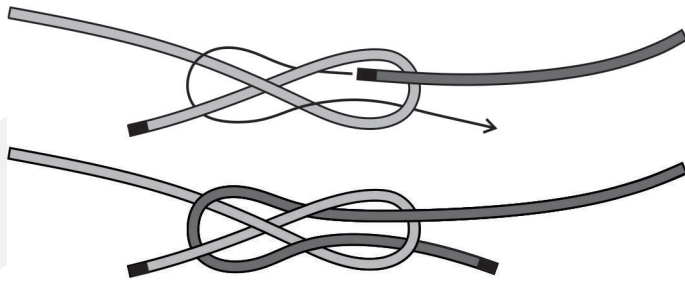
1. Make a loop on the bigger line near the end;
2. Put the small line under and up through the loop, then around under the loop and back under itself.

The Double Sheet Bend gives a more secure join by continuing around the loop again and back under itself.



Double Sheet Bend

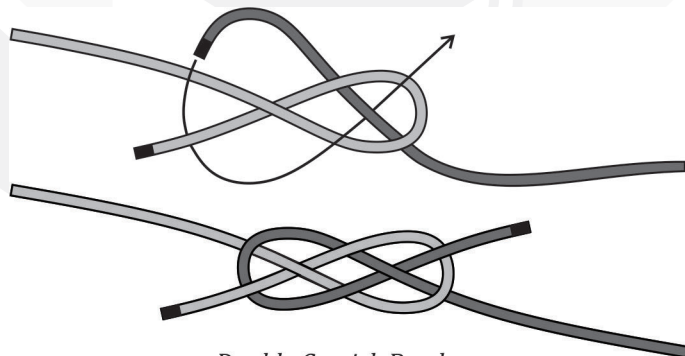
Carrick Bend Carrick Bends are easy to tie, have good holding when wet and don't jam, making them relatively easy to untie. They are mainly used for bending two hawsers. They are the ideal bend, for the weight can be on either side.



Single Carrick Bend

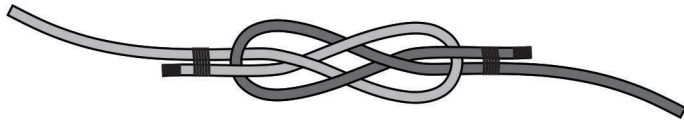
The Double Carrick Bend is most likely the nearest of the bends to perfection, due to its symmetry. The Double Carrick Bend is used for joining two heavier weight lines or lighter cable for towing. The Carrick Bend is also called the Josephine Knot when used in lighter cords and needlework. The steps for making Double Carrick Bend are as follows:

1. Make a loop in one end of the rope with the end across and under the standing part, as shown below. The whole loop then lies on top of the end of the other line;
2. Pass the end of the second line under the loop and over the standing part of first line, then under the loose end of the first line;
3. Continue bringing the end of the second line around and over the first line, then under itself and over the first line;
4. Pull tight to set complete knot.

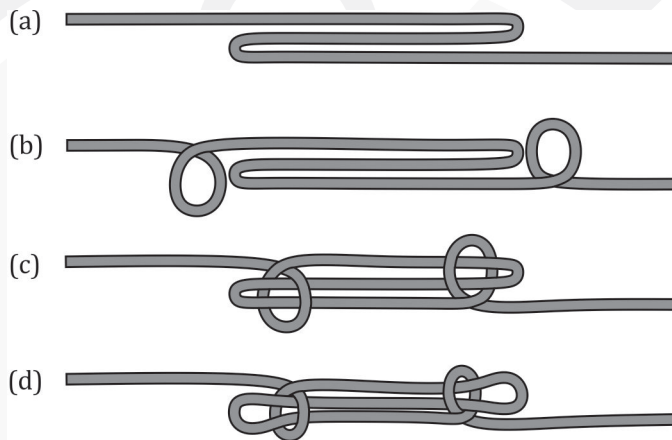


Double Carrick Bend

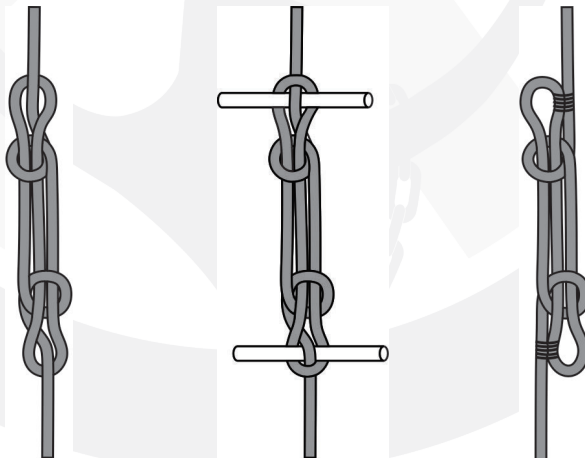
The tail ends can be seized to the standing parts to avoid any potential slipping, which seldom occurs with these bends.



Sheep Shank The Sheep Shank is generally used for shortening a line without cutting its length, or to isolate a damaged section. It will undo by itself when the line is slackeden, and the end bights can be locked by the knot, toggles or seizing to the standing parts at both ends.



There are various methods to make the knot is more secure, such as following:



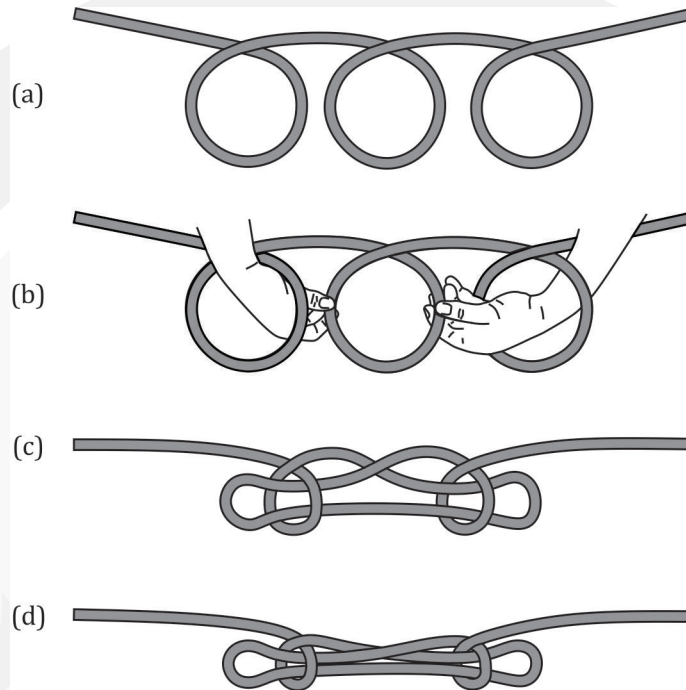
Knotted Sheepshanks
The bights are locked by the standing parts

Toggled Sheepshanks
The bights are locked by toggles formed as Marlinespike Hitches

Seized Sheepshanks
The bights are seized to the standing parts

Alternative method of making a Sheepshank

1. Make three identical loops. If the purpose is to isolate a damaged section of the line, then the damaged section should be in the middle loop.
2. Reach through the outer loops to pull the middle loop through the outer loops.

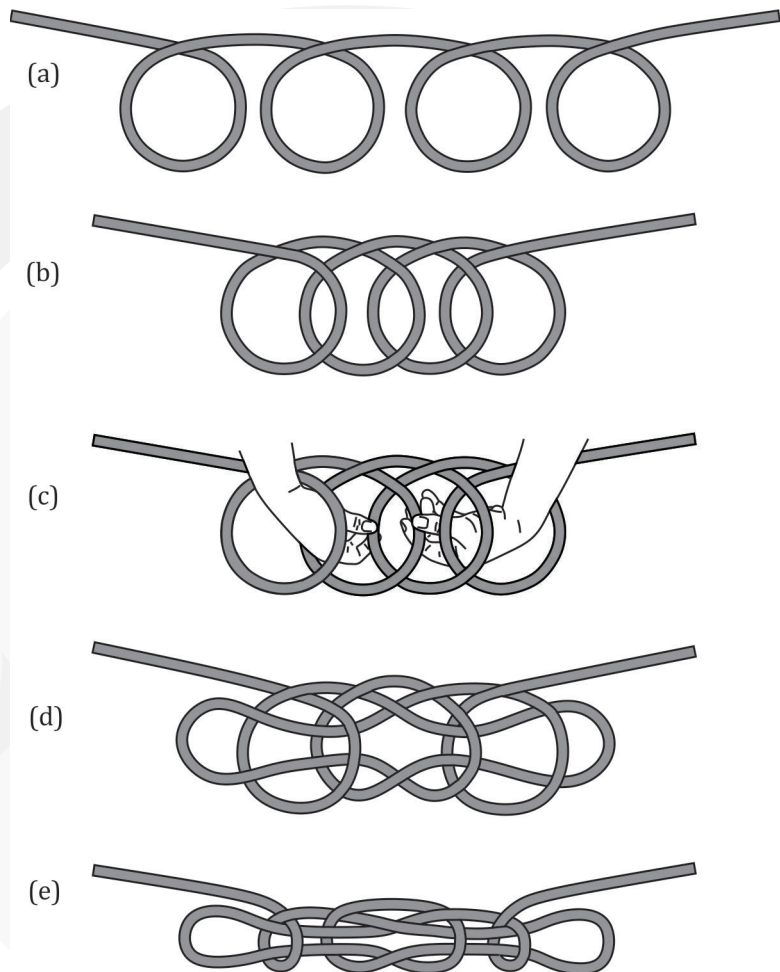


Alternative Method of Making Sheepshank

Another version of the Sheep Shank is called the Sheep Shank Man o' War, or Sheep Shank with Reef. This knot is more decorative than functional. The following steps show how to tie it:

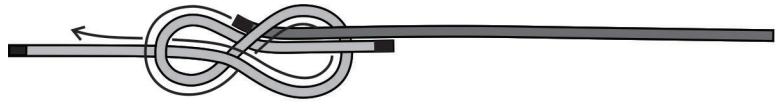
1. Make four identical loops (1);
2. Lay the loop one on top of another, as shown in (2);
3. Put two hands through two outer loops on each side to reach and grab closest part of the third loop from each side (3);
4. Slowly pull them out together through the outermost loops on both sides (4);

5. Pull the two ends to tie the line (5) to complete. It then can be locked by toggle or seizing.



Sheepshank with Reef

**Figure-of-Eight
Bend or Flemish
Bend**



*Figure-of-Eight Bend
or Flemish Bend*

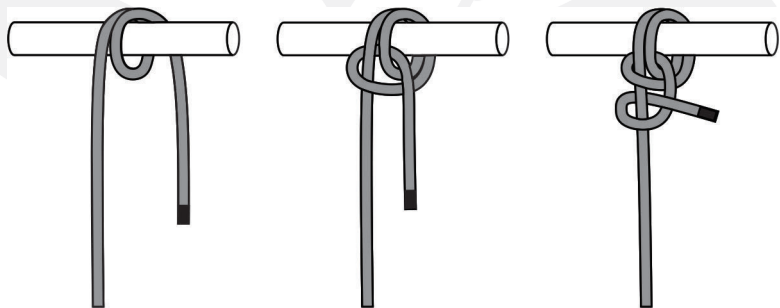
1. Tie a Figure-of-Eight Knot in one end of a rope;
2. Take the other end of the rope and follow all of the twists and turns of the Figure-Eight Knot from the opposite direction;
3. Complete following all the twists and turns. Make sure all the rope is parallel, no crossover;
4. Hold the end together with standing part on each side and pull to complete the bend;
5. The end of rope on each side can be tied in Double Overhand Knots to the standing part to make it more secure.

The Figure-of-Eight Bend can also be tied simply by holding two ropes together and making a Figure-Eight Knot. This method is not reliable because both ends point in the same direction when the rope is pulled in another direction, causing the knot to become distorted, loose and unsafe.



Fisherman's Bend

This is a modified Two-and-a-half-Hitch, used for securing a rope to a pole or hawser, or to the ring of a buoy. So the Fisherman's Bend is actually a hitch, not a bend.



Fisherman Bend