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Knots

Photographer: Alex Ratson.

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Knots

This chapter introduces the most commonly used knots for sport climbing.

Every climber should be able to recognize, tie and untie the following knots without having to think about it. Remember that you may have to tie them in situations which are far from ideal and you will trust your life to each knot.

Dressing

After tying any knot, it is important that you dress it correctly. This means tightening each strand and adjusting the loops and twists so they are perfectly aligned. Your knots should look exactly like the diagrams in this book. A knot which isn't well dressed could slip or fail.

Diameter, Flexibility and Surface Friction

The examples given in this book assume that you are tying identical sections of cord or rope together. Knots work best when every rope involved is of the same diameter, flexibility, elasticity and surface friction.

Minor differences are fine. For example, tying a 9.5mm and a 10.2mm dynamic rope end-to-end for abseiling is safe. But tying a 6mm tag line to a 10.2mm rope with the same knot will probably result in that knot falling apart.

Likewise, a knot joining an old, stiff static rope to a slick, flexible dynamic rope is likely to slip, even if they are the same diameter.

Figure-8 Tie In

Uses

The figure-8 is widely accepted as being the safest knot to tie-in with.

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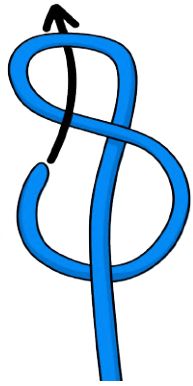
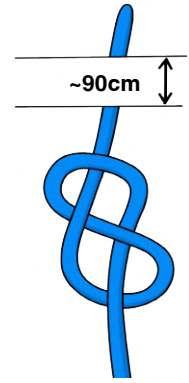
Step 1

Make a loop about a meter from the end of the rope. Wrap the end of the rope around the base of the loop, then push the end through as shown.



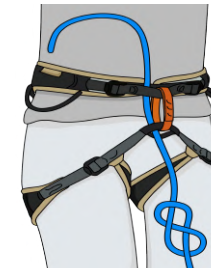
Step 2

You should end up with an '8'. Make sure the knot is around 90cm from the end of the rope (the exact length varies with ropes of different diameters).



Step 3

Pass the end of the rope through **both** of the two points on the front centre of your harness — the same ones your belay loop runs through. It is important that the rope goes through your harness in exactly the same way as your belay loop does.



Step 4

Use the end of the rope to re-trace the figure-8. Follow the twists of the rope starting from where it joins your harness.

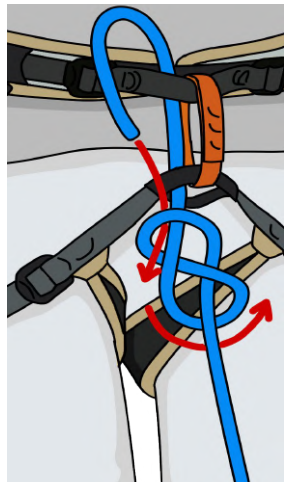
Step 5

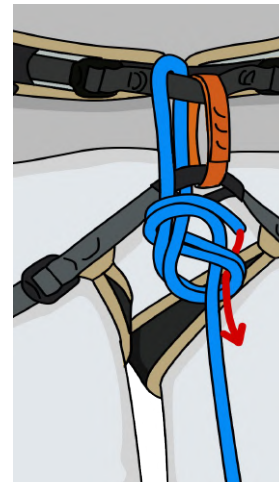
Continue following the twists until you end up back at the start of the knot.

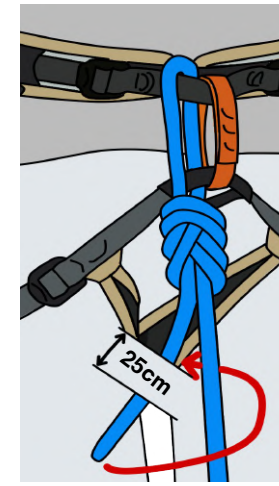
Pull the whole thing tight.

Step 6

Make sure the tail of rope is around 25cm long. If it is shorter, you'll have to untie and start again. After this, you will need to tie a stopper knot. Loop the short section of rope around the main length.







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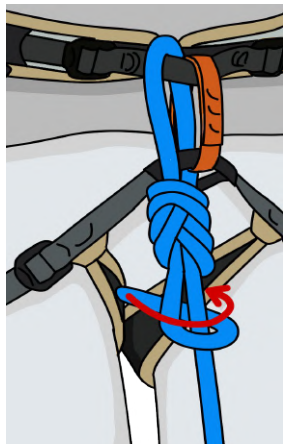
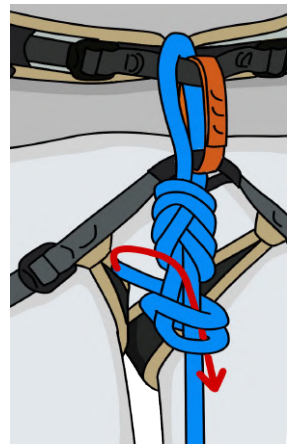
Step 7
Do this twice, with the second loop closer to you than the first.



Step 8
Push the end of the rope through these two loops, as shown.



Step 9
Pull this tight too (make sure it's pushed right up to your figure-8 knot).

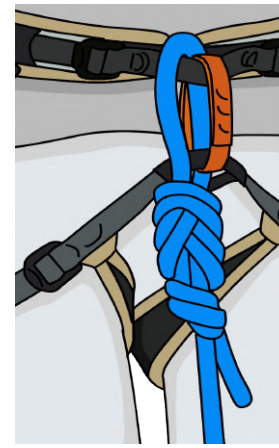
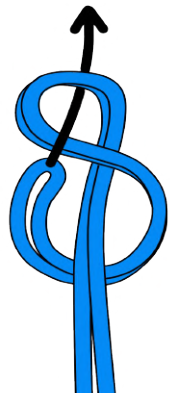


Figure-8 on a Bight

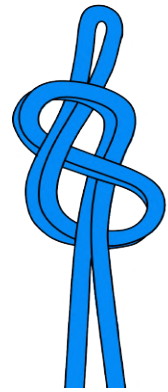
Uses

- Attaching the rope to an anchor.
- Creating a master point in a cordelette or sling.

Step 1
Take a bight of rope and form an '8' shape as shown.



Step 2
Push the end of the rope through the top part of the 8.



Step 3
Pull it tight.

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Stopper Knot

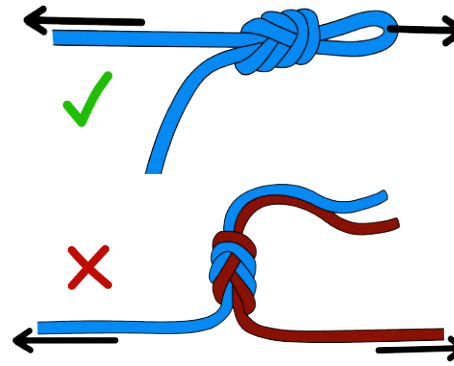
When tying a figure-8 in the end of a rope, make sure to add a stopper knot.

Warning!

Figure-8's should only be end-loaded (pulled along the line of the knot).

If you load the loop in two opposing directions, the knot can roll over itself and lose strength or fail completely.

For this reason, you should never use the figure-8 to join ropes for abseiling.



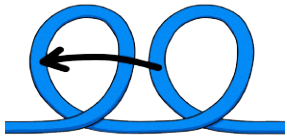
Clovehitch

Uses

- Attaching yourself to the anchor.
- Attaching ropes, cord or slings to carabiners.

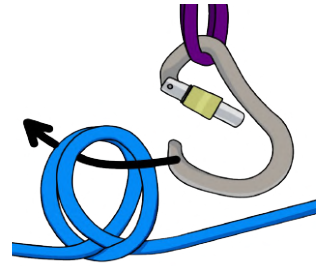
Step 1

Make two identical loops in the rope. Put the rear loop over the top of the front loop.



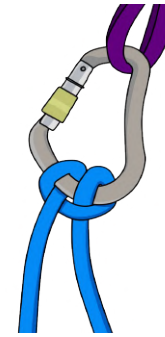
Step 2

Clip a screwgate carabiner (never use a snapgate carabiner) through these two loops.



Step 3

Pull it tight and fasten the screwgate.



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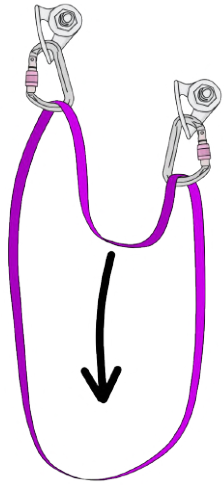
Overhand Loop

Uses

- Creating a master point in a cordelette or sling.

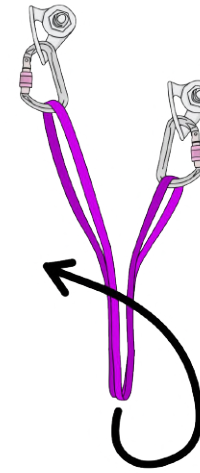
Step 1

Clip the sling to both bolts and pull the strands down so they are equal.



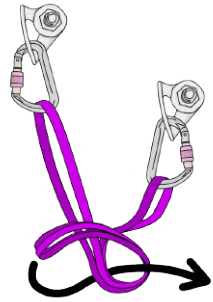
Step 2

Pull the bottom of the sling around to form a loop.



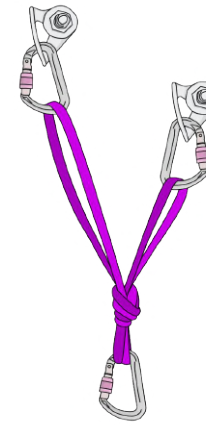
Step 3

Push the end of the sling through the loop as shown. Pull the knot tight.



Step 4

This forms two small loops beneath the overhand knot. Clip a screwgate through both of these loops to form the central point.



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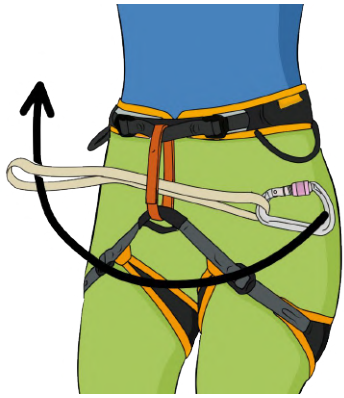
Girth Hitch (Lark's Foot)

Uses

- Attaching slings to your belay loop.
- Attaching slings together.
- Fastening a sling around a tree.
- Connecting a sling to a carabiner without opening the gate.

Step 1

Feed a sling through your belay loop.



Step 2

Put one end of the sling through the other.

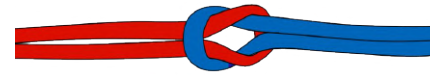
Step 3

Pull it tight.

Strop Bend

You can also link two slings together using these same steps.

Arrange the girth hitch as shown below to create a strop bend. This is basically a neater version of the girth hitch.



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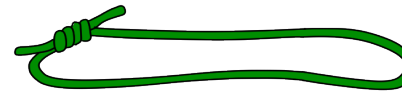
Double Fisherman's Bend

Uses

- Tying two ends of cord together to make a prusik or cordelette.



Step 1

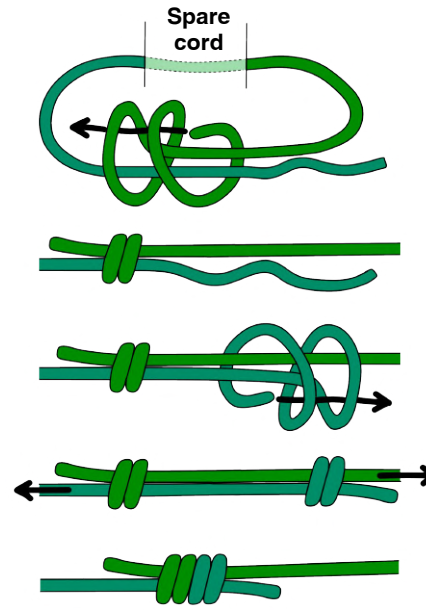
Loop one end of the cord around twice as shown to create two loops. Then push the end through these loops.

Step 2

Pull it tight and do the same with the other end of the cord.

Step 3

Pull it all tight so that the two knots jam together. Make sure the tails are at least 10 times the diameter of the cord (e.g: 5cm tails for a 5mm prusik cord).



Triple Fisherman's Bend

Add an extra coil to make a triple fisherman's bend.

Some slippery cords (such as dyneema) require a triple so they don't slide apart under load — check the manufacturer's recommendations.

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The Autoblock (French) Prusik

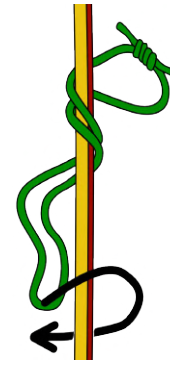
Uses:

- To back up an abseil.

Prusiks can be made with a 1.2m length of 5mm cord tied together with a double fisherman's bend. A correctly tied prusik will auto-lock if you let go of the ropes. Different types of prusik have advantages in certain situations. These are detailed in *The Trad Climber's Guide To Problem Solving*.

Step 1

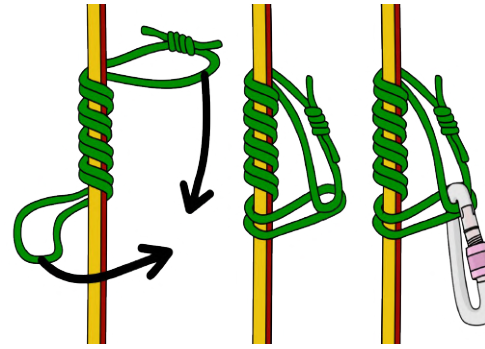
Wrap the prusik neatly around the rope a few times as shown.



Step 2

Clip the ends together with a carabiner. More wraps will create more friction around the ropes, though four wraps are generally enough.

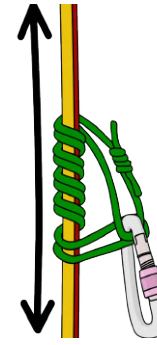
Make sure the autoblock is neat and the double fisherman's bend is away from the ropes.



Step 3

Pinch the knot to loosen it. This allows you to move it down the rope.

Weight the knot to lock it. The autoblock locks in both directions, but the double fisherman's bend tends to wrap itself into the prusik when the direction is switched, making it much less effective.



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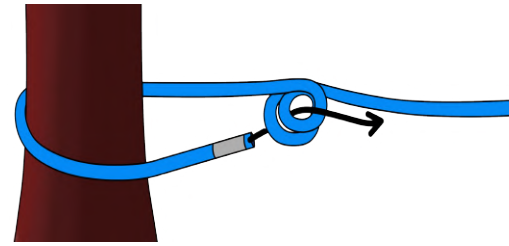
Double Bowline

Uses

- Securing the end of a rope around a large object such as a tree.
- Could also be used to tie the rope to your harness.

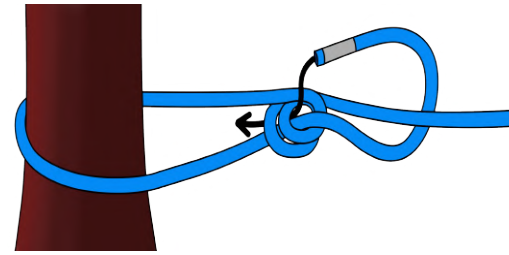
Step 1

Wrap the end of the rope around a tree or other suitable object. Form two loops in the rope as shown.



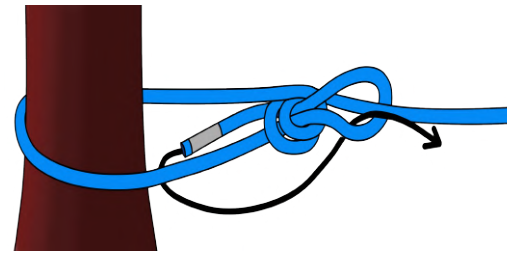
Step 2

Push the end of the rope up through the two loops and around the back of the main strand. Then push the end of the rope back down through the loops.



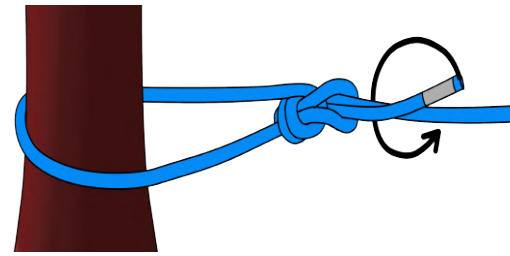
Step 3

Pass the end around the back of the knot and push it up through the new loop as shown.



Step 4

The double bowline is now tied, but needs a stopper knot to be complete. Pass the end of the rope around the main strand twice.



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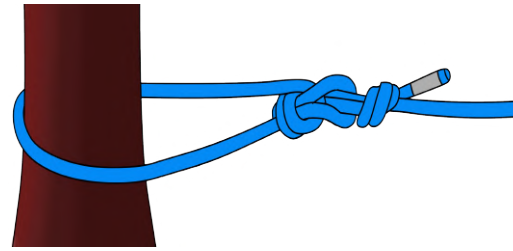
Step 5

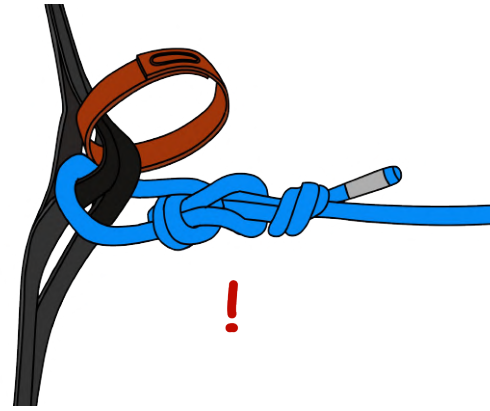
Finish the stopper knot to complete the double bowline.



Warning!

The double bowline is great for tying around a tree or boulder as part of a top-rope anchor.

Some climbers also use the double bowline for tying in because it's easy to untie after multiple falls. However, it has been known to untie itself, especially if the rope is stiff. This is due to lots of movement in the rope as you climb. The figure-8 is recommended as a much safer alternative for tying into your harness.



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Want To Trad Climb?

Once you've mastered leading sport routes, you may be wondering what's next.

Many people want to start trad climbing but don't know where to start.

Take a Course

Consider hiring a guide or joining a group session for a good introduction to trad climbing. Your local indoor wall should be able to give you more information about this.

Read Up

Visit www.vdiffclimbing.com for huge amounts of free information about trad climbing.

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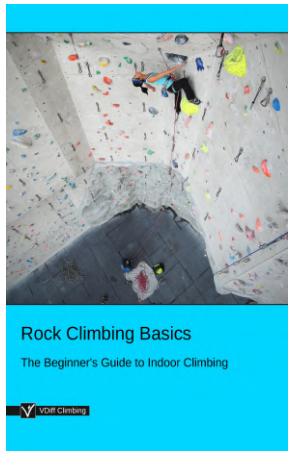
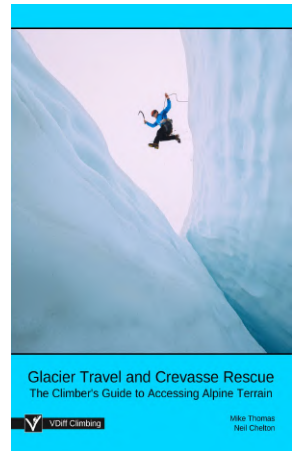
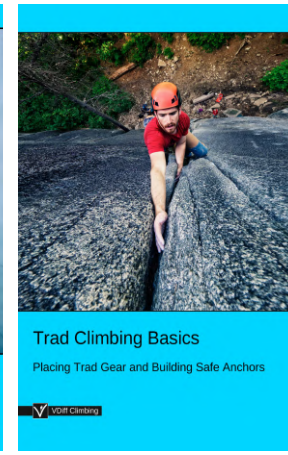
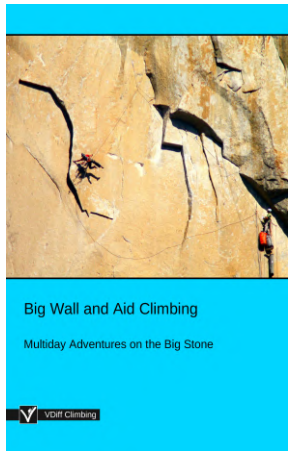
Other VDiff Titles









Having the knowledge of safe climbing skills is the lightest and most useful equipment you can take on any climb.

Learn before you go. Don't actually take these books up there with you!

Available as paperbacks or e-books. For more information, visit:
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