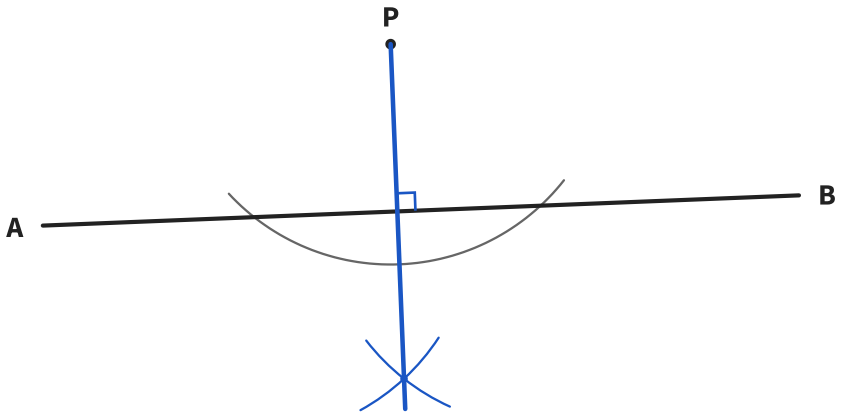
Constructing a perpendicular through a point

ANSWERS

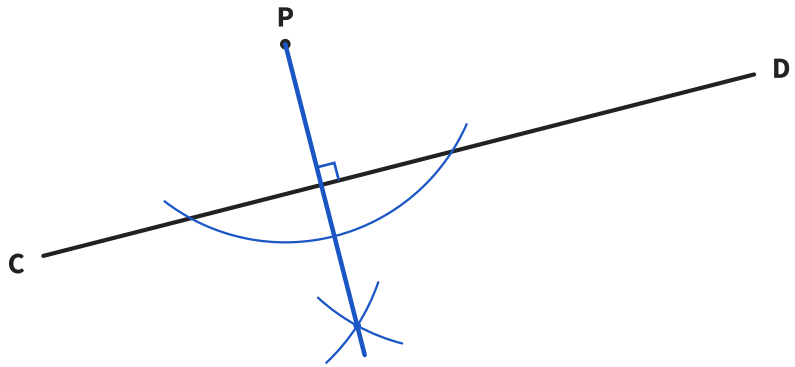
1 The arc from P is drawn. Keep the same width.

Construct the perpendicular from P to the line AB. Leave your arcs showing.



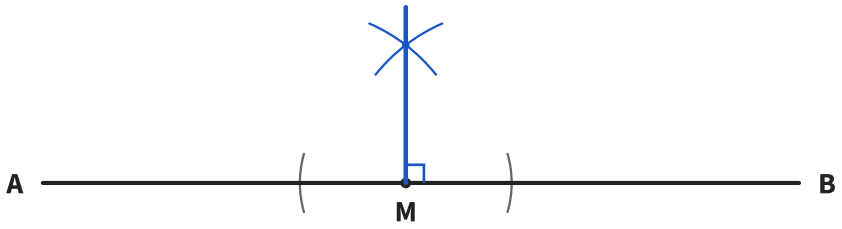
2

Construct the perpendicular from P to the line CD. Leave your arcs showing.



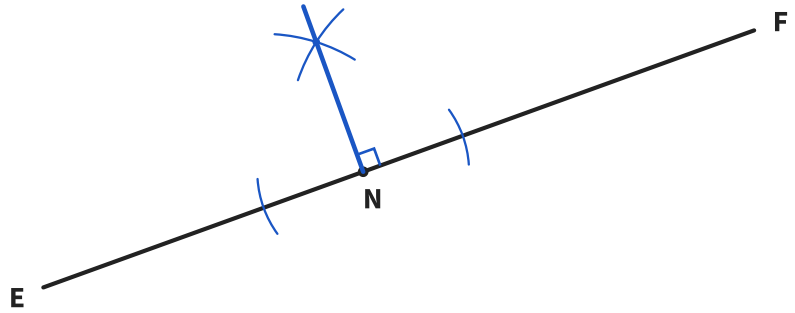
3 *Notice the change!* The two marks either side of M are drawn.

Construct the perpendicular to the line AB at the point M on the line.
Leave your arcs showing.



4

Construct the perpendicular to the line EF at the point N on the line.
Leave your arcs showing.

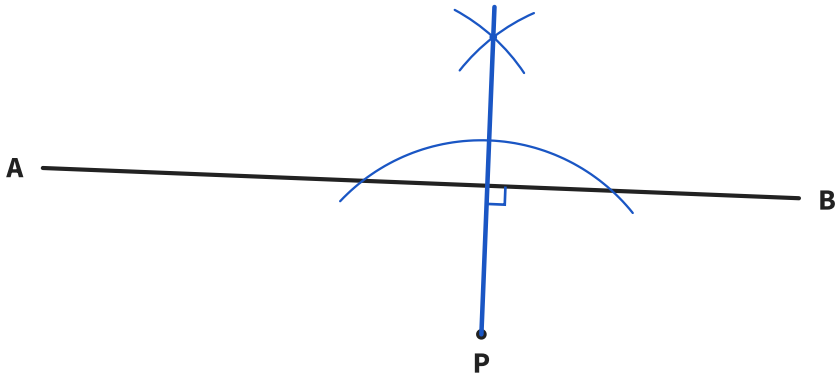


Constructing a perpendicular through a point

ANSWERS

5

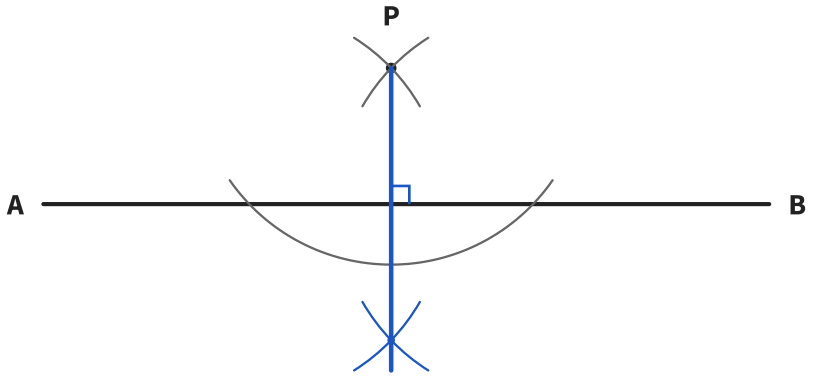
Construct the perpendicular from P to the line AB. Then check the angle with a protractor.



Angle = 90°

6

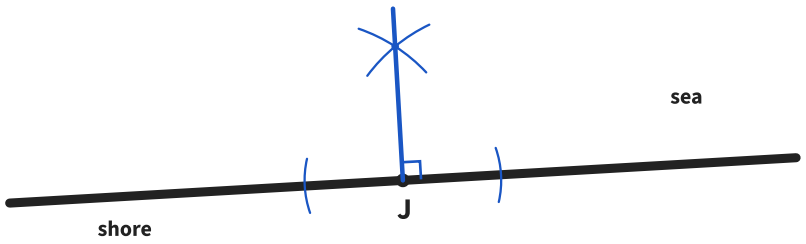
Ezra drew the arc from P, then arcs from both crossings above the line. Explain what went wrong. Construct the perpendicular from P.



Answer His arcs from the crossings are on P's side, so with the same width they meet at P again. Draw them below the line.

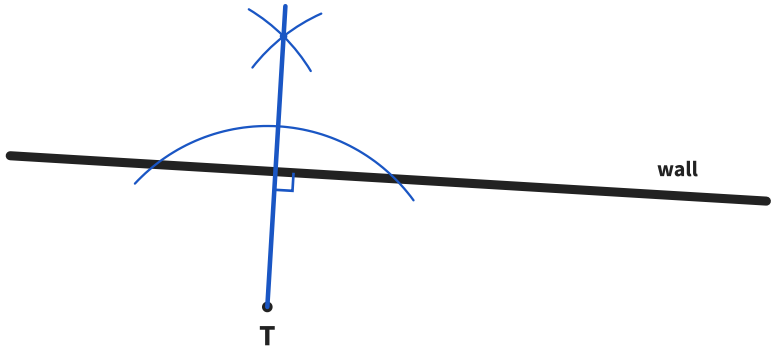
7

A jetty will be built out into the sea from J, at right angles to the straight shore. Construct the line of the jetty. Leave your arcs showing.



8

A garden tap is at T. A pipe will run from the tap to the straight wall by the shortest route. Construct the route of the pipe.



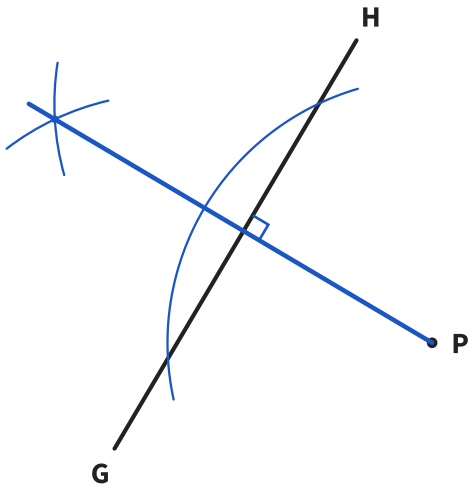
Constructing a perpendicular through a point

further practice

ANSWERS

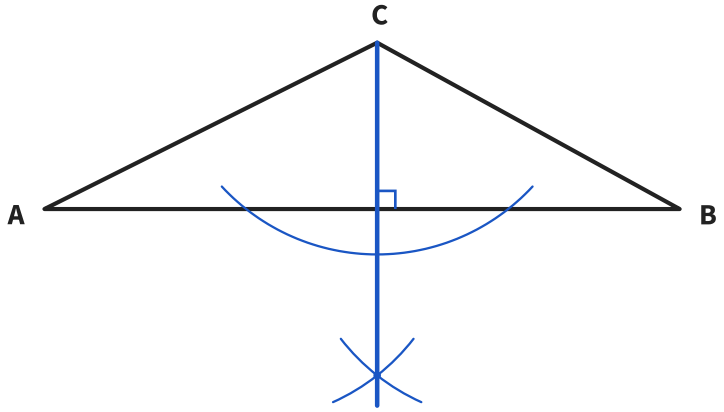
9

Construct the perpendicular from P to the line GH. Leave your arcs showing.



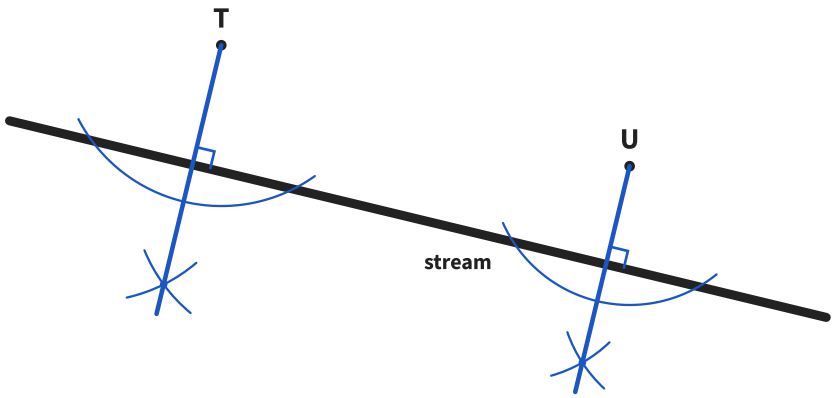
10

Construct the perpendicular from C to the side AB. It shows the height of triangle ABC. Leave your arcs showing.



11

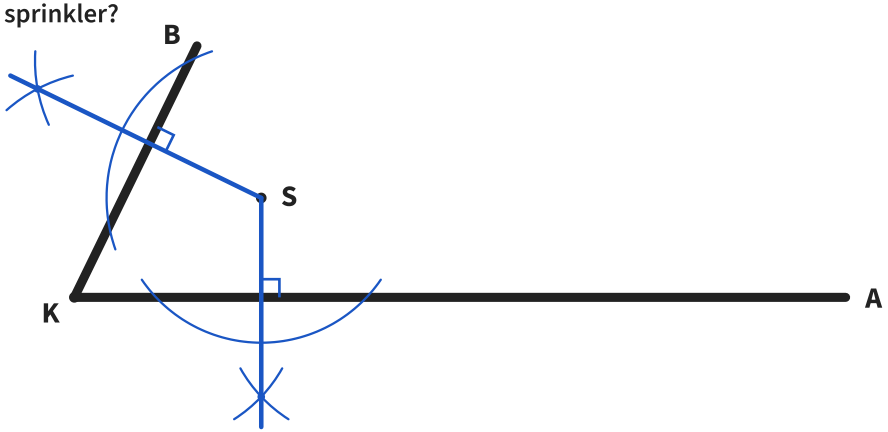
Tents are pitched at T and U beside a straight stream. Construct the shortest path from each tent to the stream. Which tent is nearer to the stream?



Nearer tent: U

12

Two straight fences KA and KB meet at the corner K. A sprinkler is at S. Construct the shortest path from S to each fence. Which fence is nearer to the sprinkler?



Nearer fence: KA

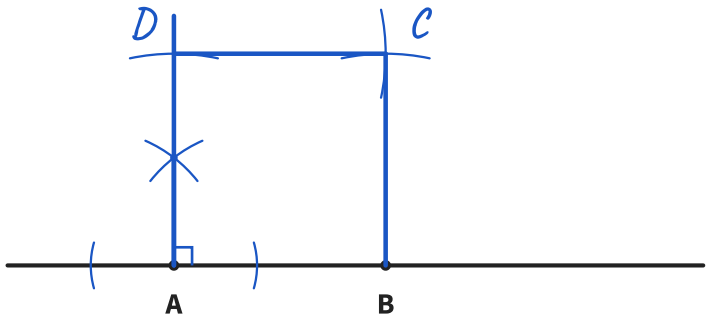
Constructing a perpendicular through a point

further practice

ANSWERS

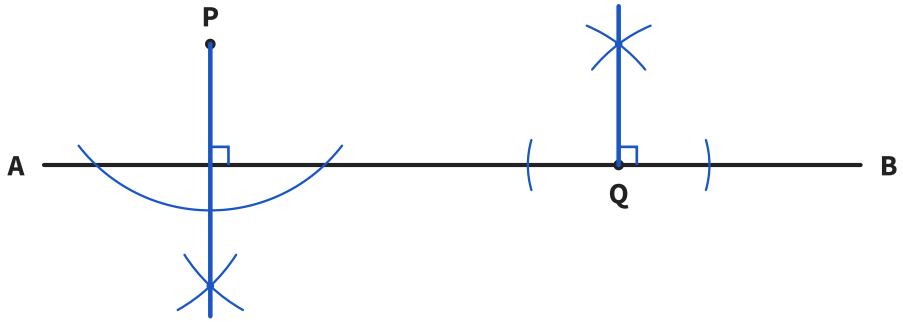
13

A square patio ABCD will have AB as one side. Construct the perpendicular to the line at A. Use your compasses to mark D on it, with AD = AB, then complete the square.



14

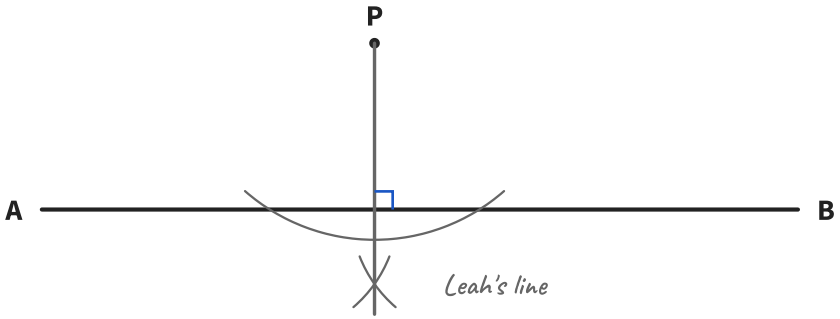
Construct the perpendicular from P to AB, and the perpendicular to AB at Q. What do you notice about the two lines you have drawn?



Answer *They are parallel: both are at 90° to AB.*

15

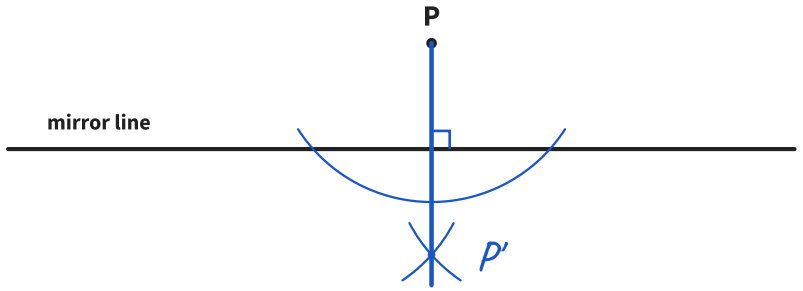
Leah made her compasses smaller for the two arcs below the line, but kept them the same for both. Is her line the perpendicular from P? Explain.



Answer *Yes. Both arcs below have the same width, so they meet on the perpendicular bisector of the two crossings, which goes through P.*

16

Construct the perpendicular from P to the mirror line, keeping the same width throughout. Mark P′, the reflection of P. Explain why P′ is where your arcs below the line cross.



Answer *Those arcs are as wide as the arc from P, so they cross as far below the line as P is above it.*