

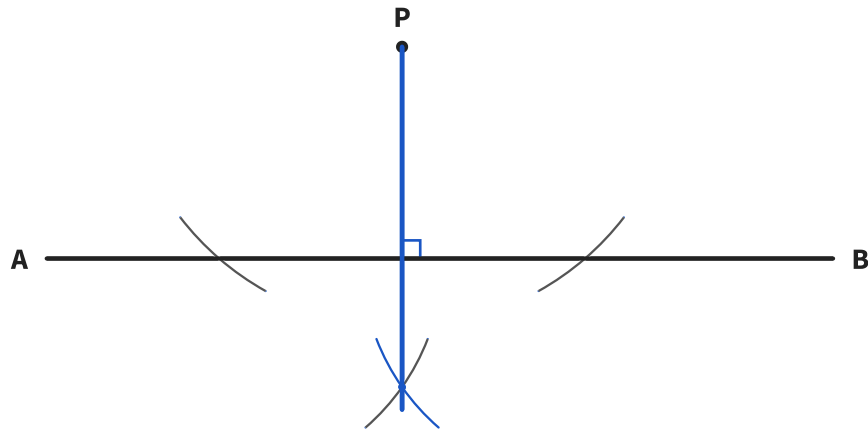
Constructing a Perpendicular Through a Point

ANSWERS

1

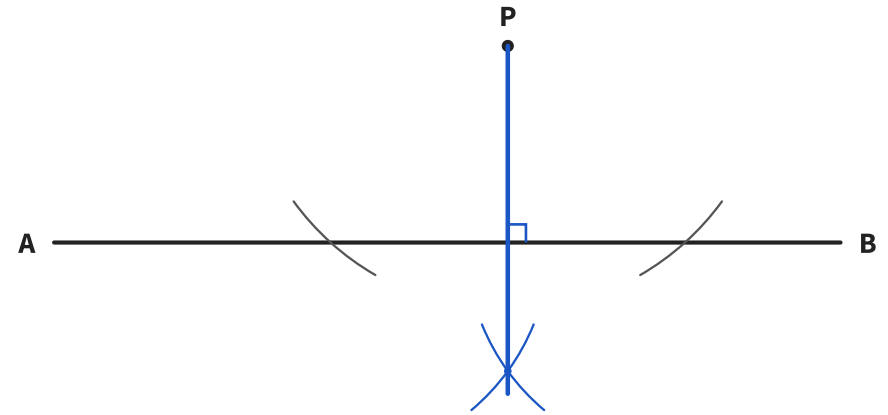
Keep the compasses the same width.

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



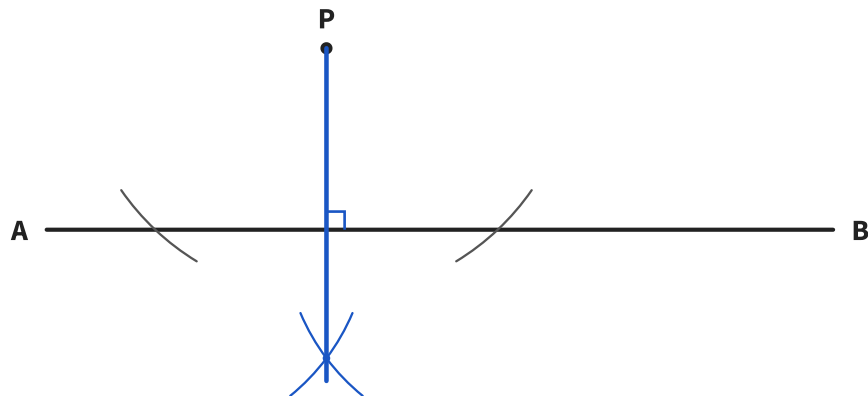
2

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



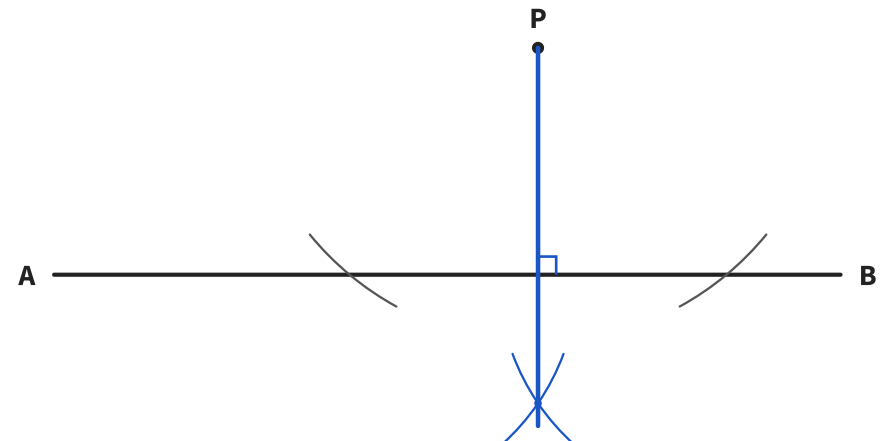
3

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



4

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

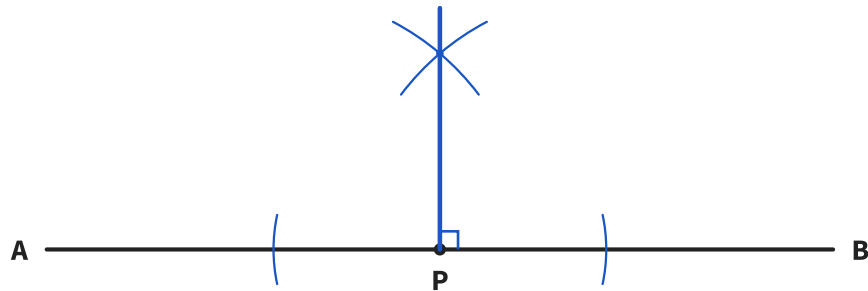


Constructing a Perpendicular Through a Point

ANSWERS

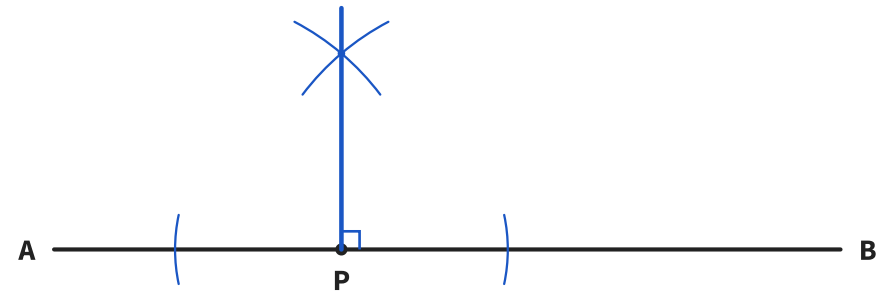
5 *Notice the change!*

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



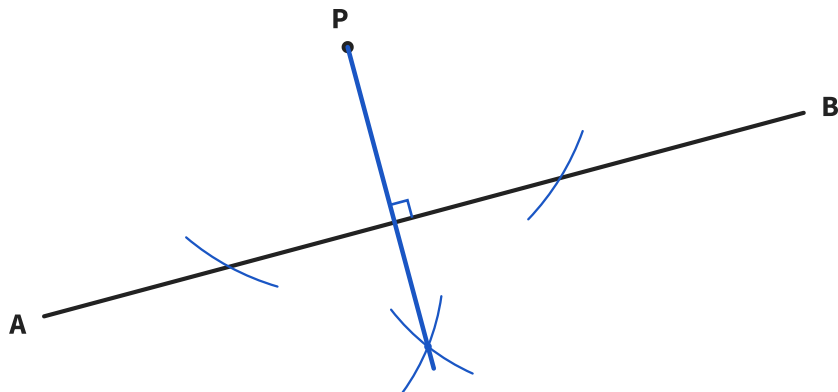
6

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



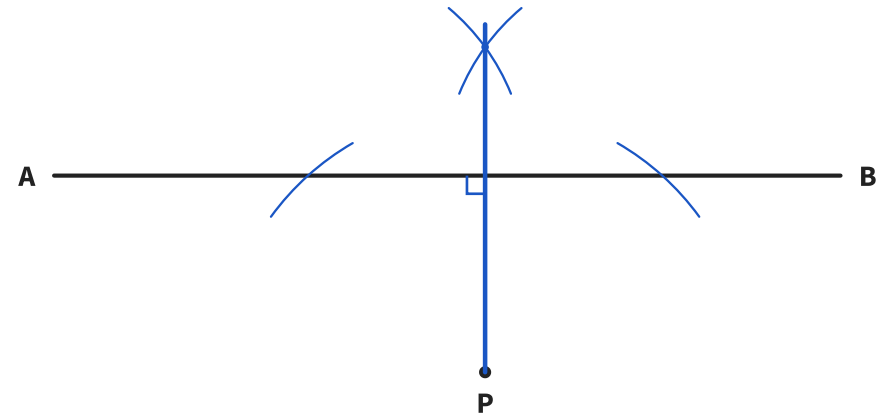
7

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



8

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

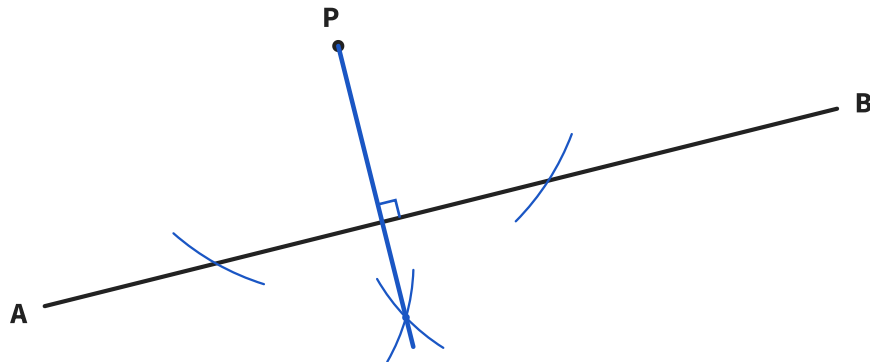


Constructing a Perpendicular Through a Point *further practice*

ANSWERS

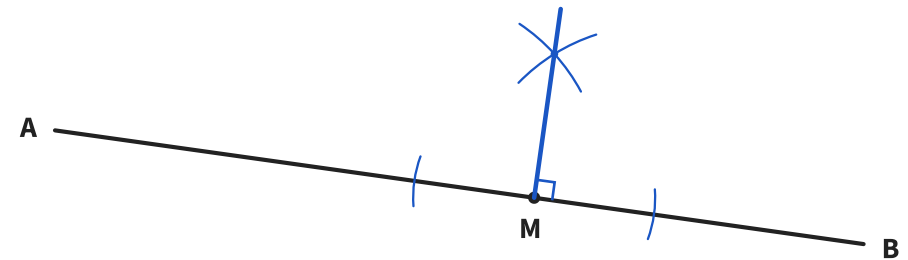
9

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



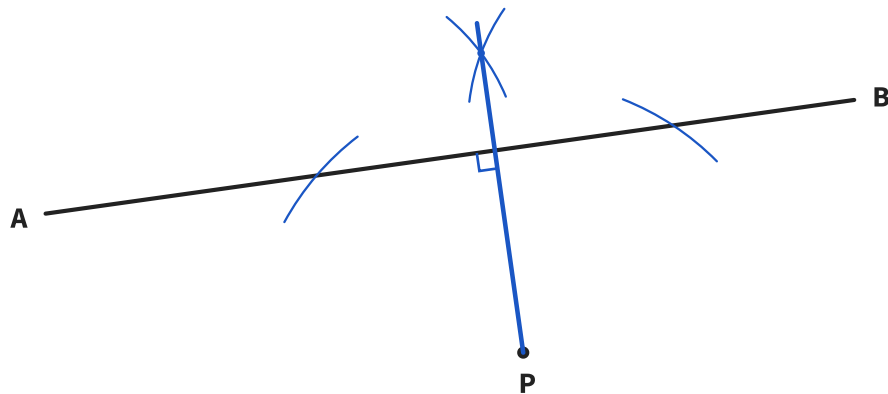
10

A carpenter will cut a board at right angles to its straight edge AB, through the mark M. Construct the line of the cut. Leave your arcs showing.



11

Construct the shortest path from P to the line AB. Then measure the shortest distance from P to AB.

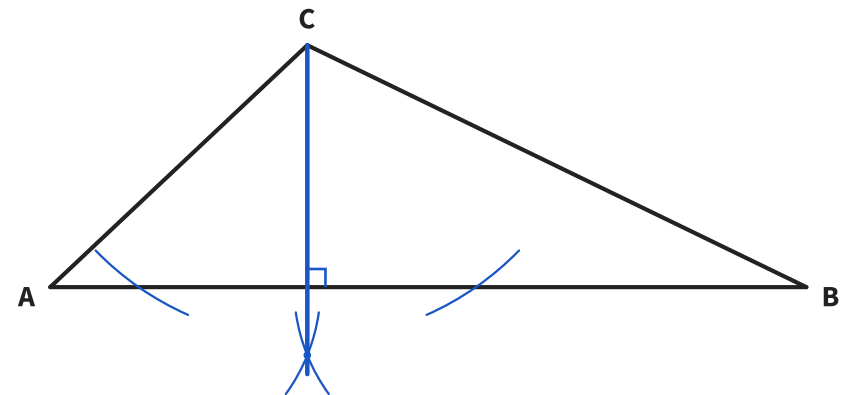


Distance

2.7 cm (allow 2.5 to 2.9)

12

AB = 10 cm. Construct the perpendicular from C to AB. Measure it, then work out the area of triangle ABC.



Area

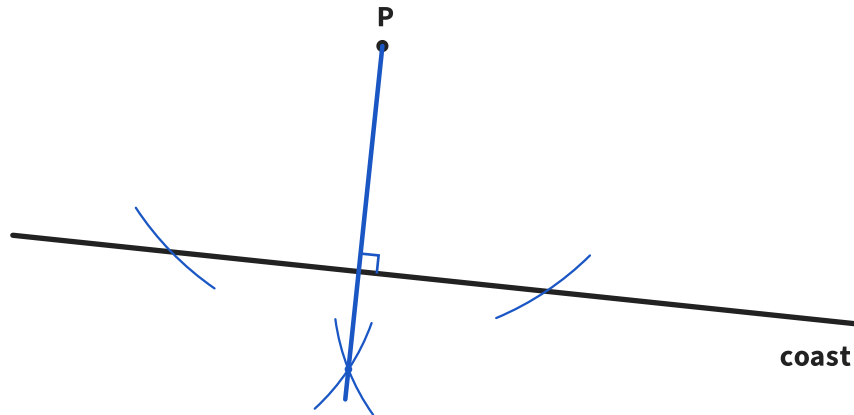
height about 3.2 cm, area about 16 cm^2 (15.5 to 16.5)

Constructing a Perpendicular Through a Point *further practice*

ANSWERS

13

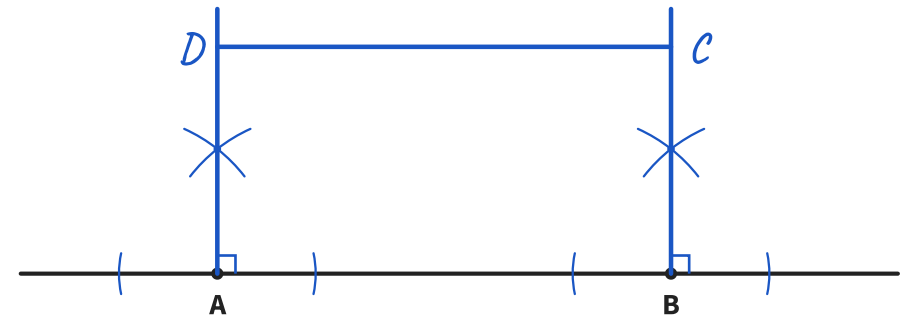
A boat is at P. The straight line is the coast. The map scale is 1 cm to 50 m. Construct the shortest route from the boat to the coast and find its real length.



Real length 3.0 cm on the map, so about 150 m (145 to 155 m)

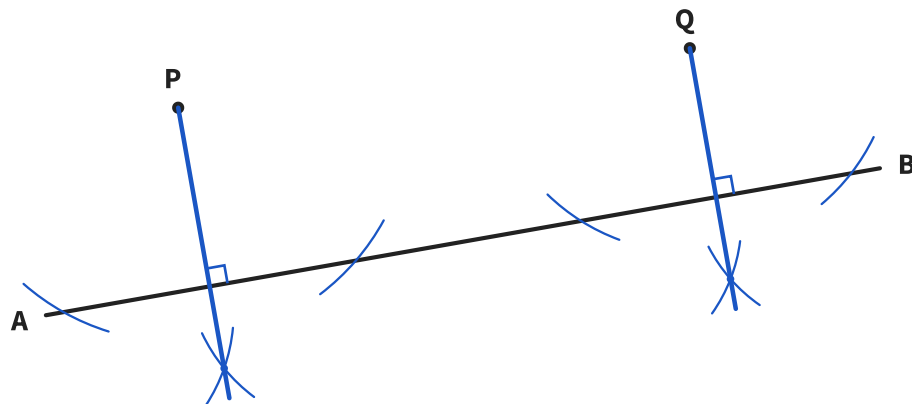
14

A and B are points on the line. Construct the perpendiculars to the line at A and at B. Use them to draw the rectangle ABCD above the line, with BC = 3 cm.



15

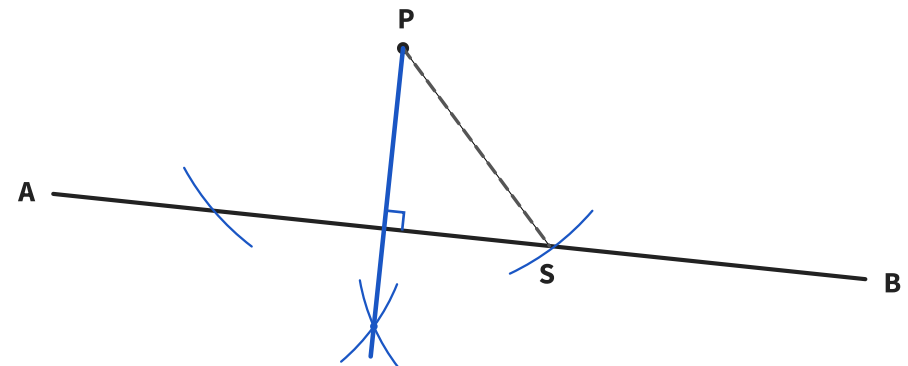
Lamp posts stand at P and at Q, beside a straight path AB. Construct the shortest path from each lamp post to AB. Which lamp post is nearer to the path?



Answer Q: about 2.0 cm, P: about 2.4 cm

16

Sam says the distance from P to the line AB is the length of PS. Construct the shortest path from P to AB. Is Sam right? Explain.



No. The shortest distance is the perpendicular, about 2.4 cm.

PS is about 3.3 cm: longer, as it is not at right angles to AB.