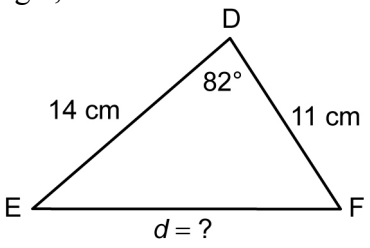
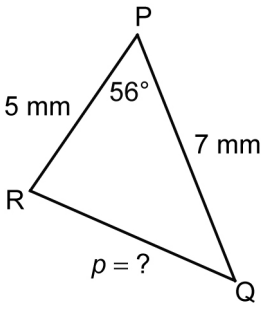
8.2 – Cosine Law Worksheet

1. Find the length of the indicated side in each triangle, to the nearest tenth of a unit.

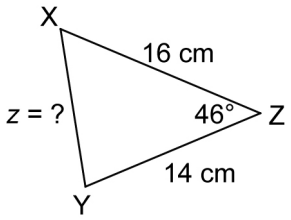
a)



b)



c)

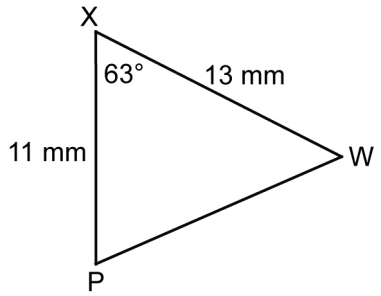


2. Sketch each triangle and use the given information to find the missing side length, to the nearest tenth of a unit.

a) In acute $\triangle ABC$, $a = 6.2$ cm, $b = 4.7$ cm, and $\angle C = 56°$.

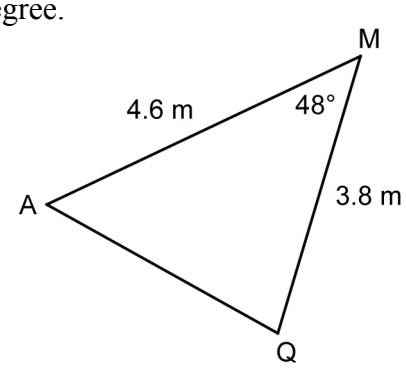
b) In acute $\triangle GHI$, $g = 13$ m, $h = 15$ m, and $\angle I = 44°$.

b)

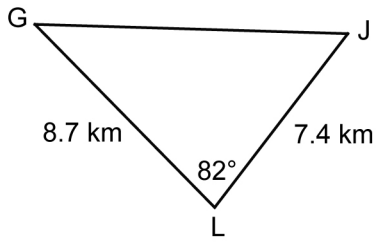


3. Solve each triangle. Round side lengths to the nearest tenth of a unit and angles to the nearest degree.

a)



c)



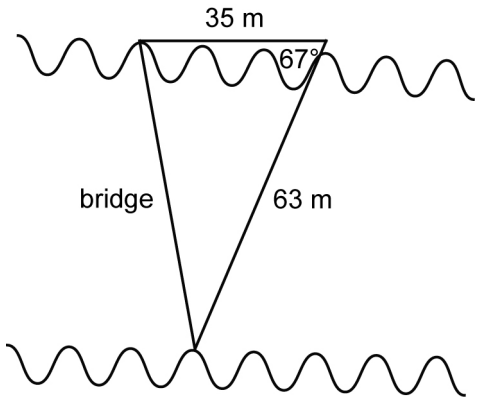
4. Sketch each triangle and label the given information. Then, solve the triangle. Round side lengths to the nearest tenth of a unit and angles to the nearest degree.

a) In $\triangle MCB$, $\angle M = 61°$, $c = 18$ cm, and $b = 21$ cm.

b) In $\triangle HBQ$, $\angle H = 71°$, $b = 14$ m, and $q = 16$ m.

5. Use Technology Check your answers to question 4 using dynamic geometry software.

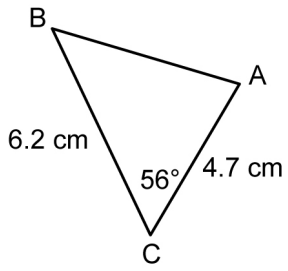
6. Find the length of the bridge, to the nearest metre.



Answers

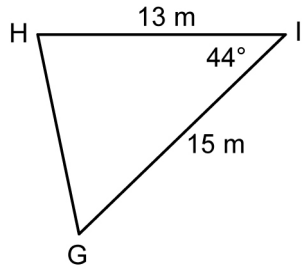
1. a) $d = 16.6$ cm **b)** $p = 5.9$ mm **d)** $z = 11.9$ cm

2. a)



$c = 5.3$ cm

b)



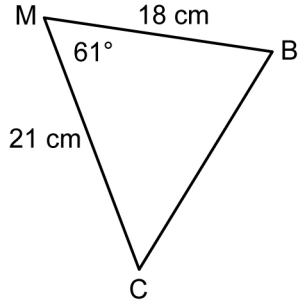
$i = 10.7$ m

3. a) $m = 3.5$ m, $\angle A = 54°$, $\angle D = 78°$

b) $x = 12.7$ mm, $\angle W = 51°$, $\angle P = 66°$

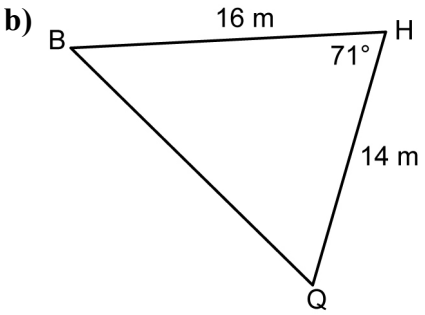
c) $l = 10.6$ cm, $\angle G = 44°$, $\angle J = 54°$

4. a)



$m = 20.0$ cm, $\angle C = 52°$, $\angle B = 67°$

b)



$h = 17.5$ m, $\angle B = 49°$, $\angle Q = 60°$

5. a) Construct △MCB. Measure side m, ∠B, and ∠C using the measuring tools.

b) Construct △HBQ. Measure side h, ∠B, and ∠Q using the measuring tools.

6. 42 m