BECA / IB Math 6 Geometry Name:
14 April 2022

6.13 Test Geometry **HSG.SRT.D.11**

Find exact values or round decimal approximations to three significant figures.

1. As shown, right $\triangle ABC$ has $AC = 8, BC = 15, AB = 17$, $m\angle C = 90°$.

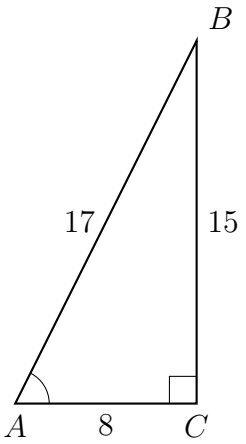
   Express each trigonometric ratio as a fraction.

   (a) $\sin A =$

   (b) $\cos A =$

   (c) $\tan A =$

   (d) Find $m\angle A$.

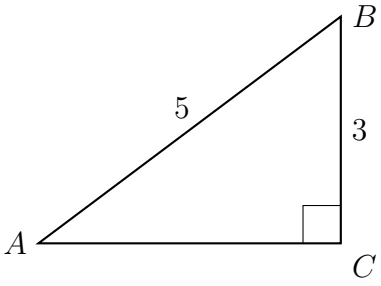


2. Right triangle $\triangle ABC$ is shown with measures as marked.

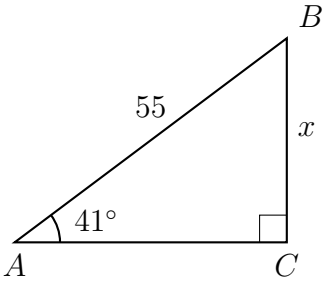
   (a) Write down $\sin A$.

   (b) Find the length of side AC.

   (c) Find the angle measure of $\angle A$.



3. Right triangle ABC is shown with $AB = 55$, $m\angle A = 41°$. Find the value of $BC = x$.



Given formulas

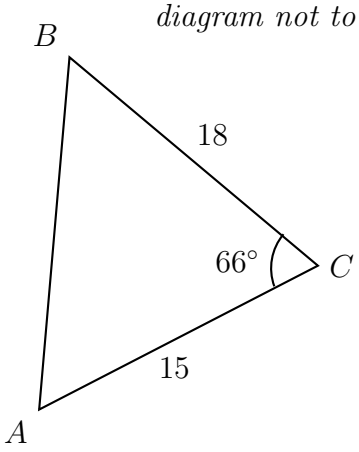
Sine rule: $\dfrac{a}{\sin A} = \dfrac{b}{\sin B} = \dfrac{c}{\sin C}$

Cosine rule: $c^2 = a^2 + b^2 - 2ab\cos C, \quad \cos C = \dfrac{a^2 + b^2 - c^2}{2ab}$

Area of a triangle: $A = \dfrac{1}{2}ab\sin C$

4. Find the area of the given triangle.

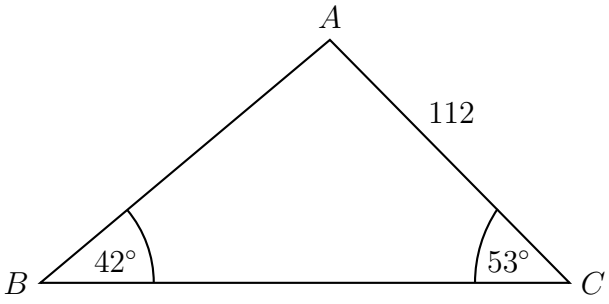
diagram not to scale



5. The following diagram shows triangle ABC, with $A\hat{B}C = 42°$, $A\hat{C}B = 53°$, and $AC = 112$ cm.

   Find AB.

diagram not to scale



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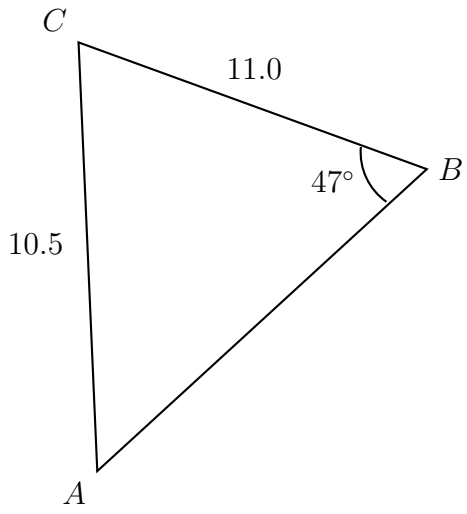
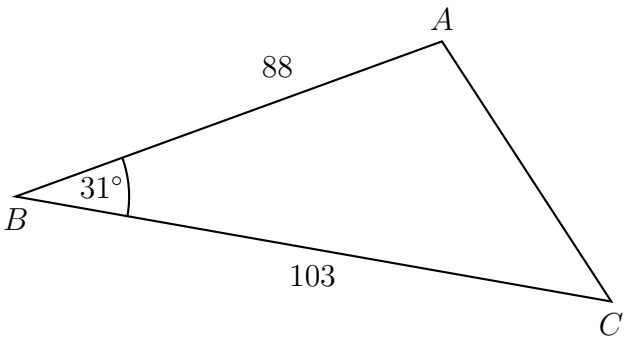
6. Triangle ABC is drawn with $AC = 10.5$ cm, $BC = 11.0$ cm, and $A\hat{B}C = 47°$.
   Find $B\hat{A}C$.

diagram not to scale



7. As shown in the diagram, triangle ABC has $A\hat{B}C = 31°$, $AB = 88$, and $BC = 103$.
   Find AC.

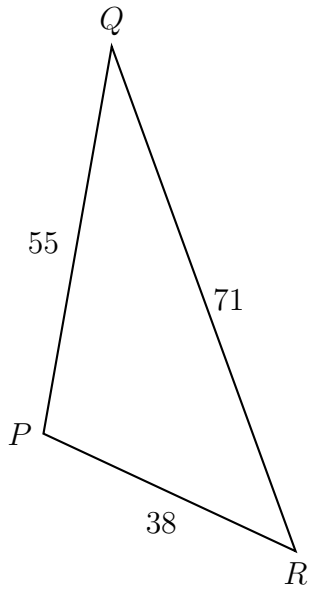
diagram not to scale



8. The following diagram shows triangle PQR. (*not to scale*)

   $PQ = 55$ meters, $QR = 71$ m., and $PR = 38$ m.

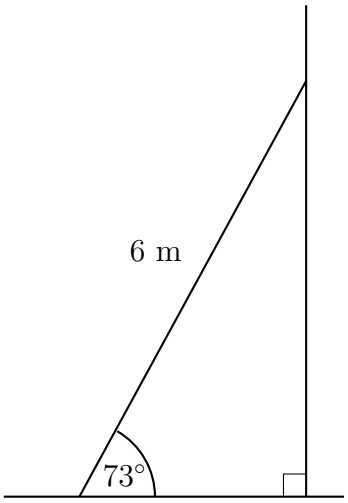
   Find $Q\hat{P}R$.



9. A ladder that is 6 meters long leans against a wall making an angle to the ground of 73°, as shown in the diagram. (not drawn to scale)

   (a) Find the height of the top of the ladder above the ground.

   (b) Find the distance of the bottom of the ladder to the base of the wall.



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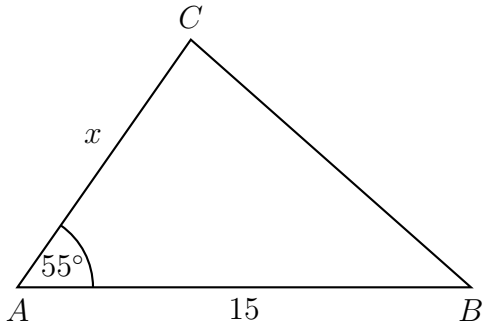
10. The following diagram shows a triangle ABC. (diagram not to scale)

The area of the triangle ABC is 75 cm^2, $AB = 15$ cm, $AC = x$ cm, and $B\hat{A}C = 55°$.

(a) Find x.



(b) Find BC.