

Name:

12.3 The Law of Cosines

HSG.SRT.D.11

Formulas

Cosine rule: $c^2 = a^2 + b^2 - 2ab \cos C$

Sine rule: $\frac{a}{\sin A} = \frac{b}{\sin B}$

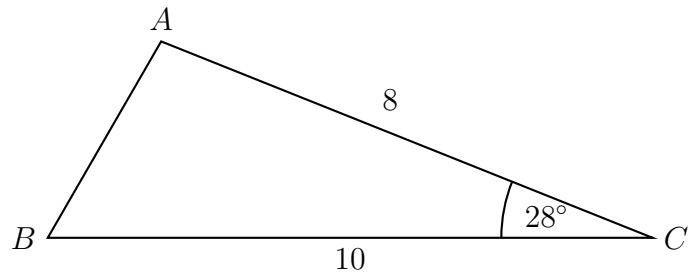
Area of a right triangle: $A = \frac{1}{2}(bh)$, where b is the base, h is the height

Area of any triangle: $A = \frac{1}{2}ab \sin C$

1. The following diagram shows triangle ABC , with $BC = 10$, $\hat{ACB} = 28^\circ$, and $AC = 8$ cm.

Find AB .

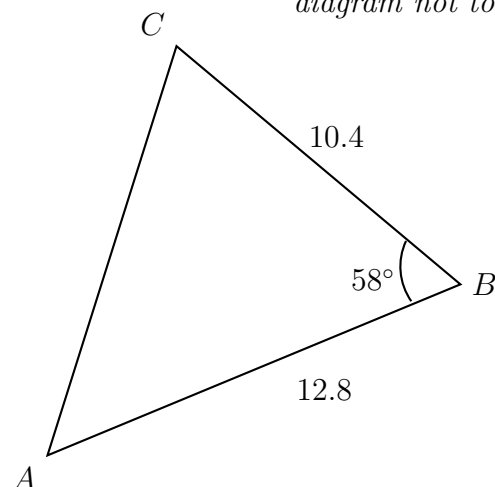
diagram not to scale



2. Triangle ABC has side lengths $AB = 12.8$ and $BC = 10.4$, while $\hat{ABC} = 58^\circ$.

Find AC .

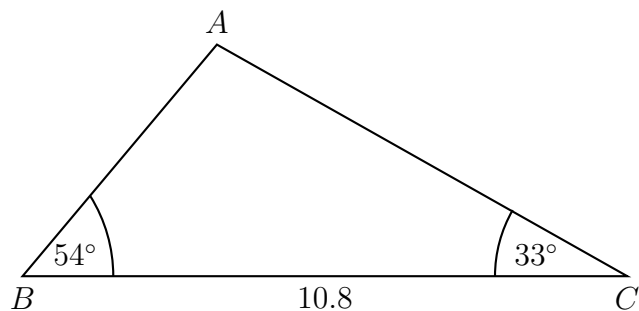
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3. The following diagram shows triangle ABC , with $\hat{A}BC = 54^\circ$, $\hat{A}CB = 33^\circ$, and $BC = 10.8$.

(i) Write down $\hat{B}AC$ (ii) Now find AC .

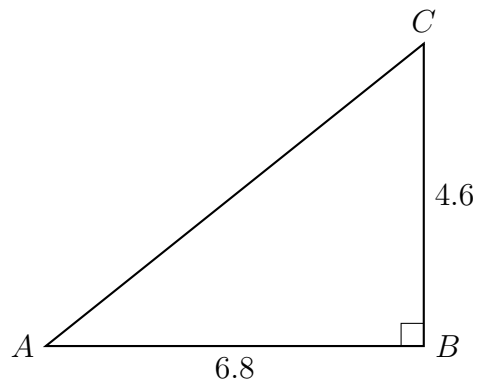
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4. The following right-angled triangle ABC has side lengths $AB = 6.8$ and $BC = 4.6$.

Find the area of the triangle.

diagram not to scale



5. The following triangle DEF has side lengths $DE = 7$ and $EF = 9$, with $\hat{D}EF = 72^\circ$.

Find the area of the triangle.

diagram not to scale

