

Geometry Unit 5 Quiz #2 Review

Day 9 - Day 13

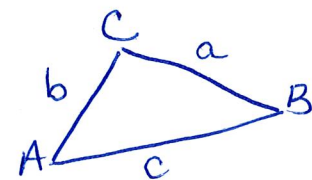
Short Answer

1. Fill in the formulas below.

Law of Sines: $\frac{\sin A^\circ}{a} = \frac{\sin B^\circ}{b} = \frac{\sin C^\circ}{c}$

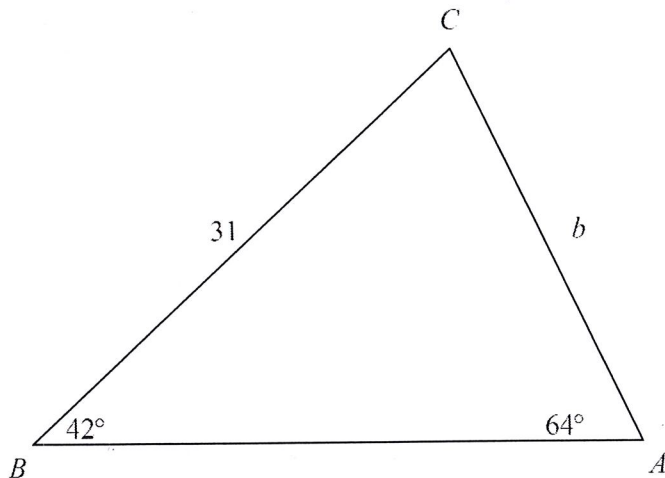
Law of Cosines: $a^2 = b^2 + c^2 - 2bc \cos A^\circ$
 $b^2 = a^2 + c^2 - 2ac \cos B^\circ$
 $c^2 = a^2 + b^2 - 2ab \cos C^\circ$

Area of a Triangle (SAS): $\text{Area} = \frac{1}{2} bc \sin A^\circ$



Complete each of the exercises below. SHOW ALL WORK FOR FULL CREDIT!!!!!!!!!!

2. Use the Law of Sines. Find b to the nearest tenth.



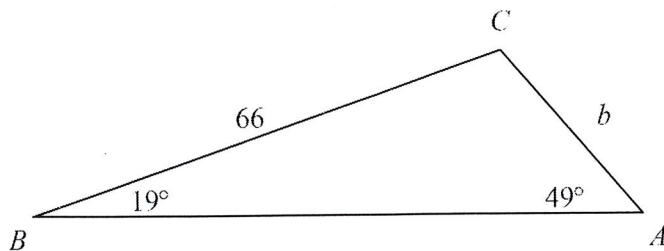
$$\frac{\sin 64^\circ}{31} = \frac{\sin 42^\circ}{b}$$

$$b \cdot \sin 64^\circ = 31 \cdot \sin 42^\circ$$

$$b \cdot (.8987) = 20.7430$$

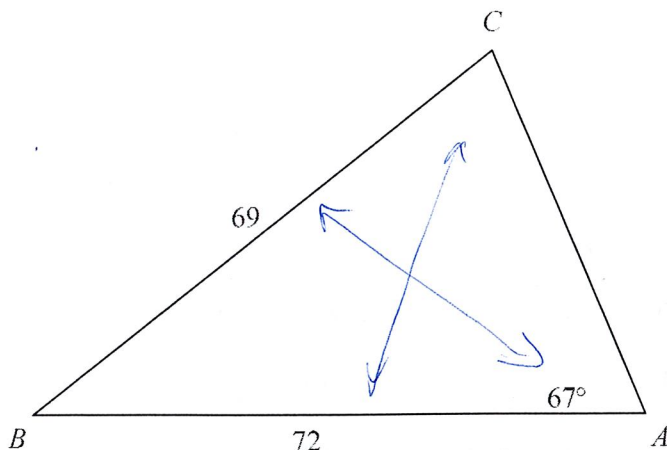
$$b = 23.1$$

3. Use the Law of Sines. Find b to the nearest tenth.



$$b = 28.5$$

4. Use the Law of Sines. Find $m\angle C$ to the nearest tenth.



$$\frac{\sin 67^\circ}{69} = \frac{\sin C^\circ}{72}$$

$$72 \cdot \sin 67^\circ = 69 \cdot \sin C^\circ$$

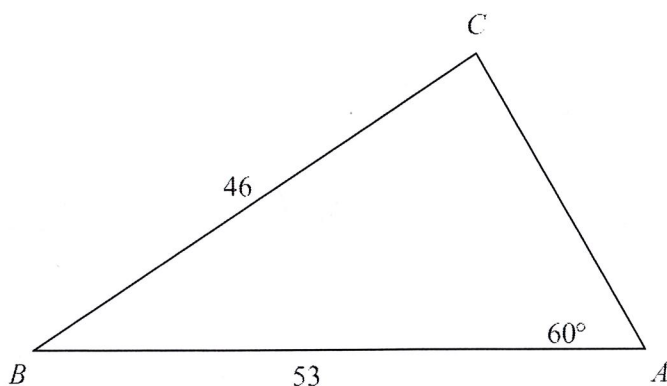
$$\frac{66.2763}{69} = \frac{69 \cdot \sin C^\circ}{69}$$

$$0.9605 = \sin C^\circ$$

$$\sin^{-1}(0.9605) = C^\circ$$

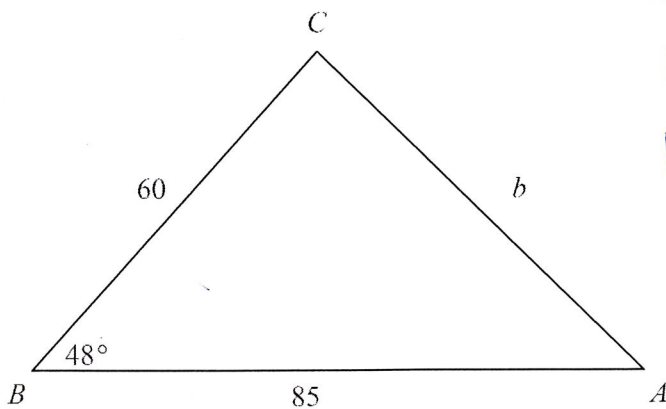
$$\boxed{73.8^\circ = C^\circ}$$

5. Use the Law of Sines. Find $m\angle C$ to the nearest tenth.



$$\boxed{86.2^\circ}$$

6. Use the Law of Cosines. Find b to the nearest tenth.



$$b^2 = a^2 + c^2 - 2ac \cos B^\circ$$

$$b^2 = 60^2 + 85^2 - 2 \cdot 60 \cdot 85 \cos 48^\circ$$

$$b^2 = 3600 + 7225 - 6825.1321$$

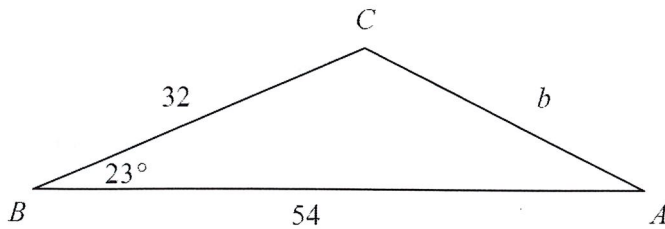
$$b^2 = 10,825 - 6825.1321$$

$$b^2 = 3999.8679$$

$$b = \sqrt{3999.8679}$$

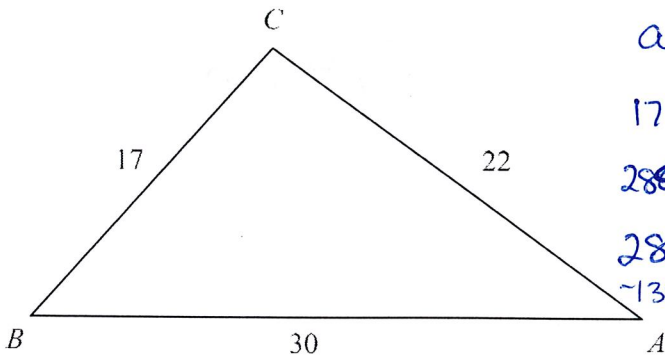
$$\boxed{b = 63.2}$$

7. Use the Law of Cosines. Find b to the nearest tenth.



$$27.5$$

8. Use the Law of Cosines. Find $m\angle A$ to the nearest tenth of a degree.



$$a^2 = b^2 + c^2 - 2bc \cos A^\circ$$

$$17^2 = 22^2 + 30^2 - 2 \cdot 22 \cdot 30 \cos A^\circ$$

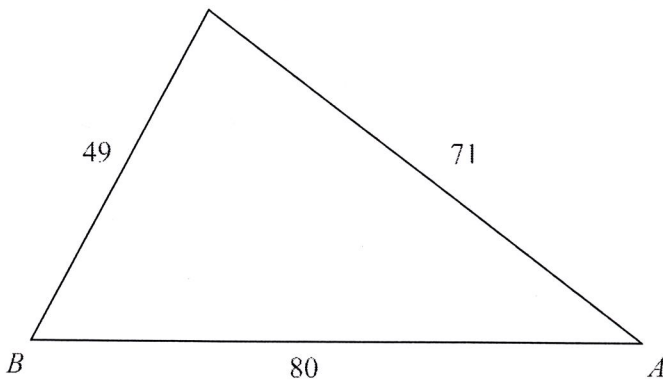
$$289 = 484 + 900 - 1320 \cos A^\circ$$

$$289 = 1384 - 1320 \cos A^\circ$$

$$\begin{array}{r} -1384 \\ -1384 \end{array} \quad \begin{array}{r} -1320 \cos A^\circ \\ -1320 \end{array}$$

$$\frac{-1095}{-1320} = \frac{-1320 \cos A^\circ}{-1320}$$

9. Use the Law of Cosines. Find $m\angle A$ to the nearest tenth of a degree.



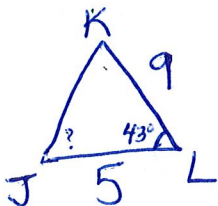
$$0.8295 = \cos A^\circ$$

$$\cos^{-1}(0.8295) = A^\circ$$

$$34.0 = A^\circ$$

$$37.3^\circ$$

10. In $\triangle JKL$, $j = 9$ in., $k = 5$ in., and $m\angle L = 43^\circ$. Find $m\angle J$.



① Find l

$$l^2 = 5^2 + 9^2 - 2 \cdot 5 \cdot 9 \cdot \cos 43^\circ$$

$$l^2 = 25 + 81 - 65.8218$$

$$\sqrt{l^2} = \sqrt{40.1782}$$

$$l = 6.3$$

② Use law of Sines to get $\angle J$

$$\frac{\sin 43^\circ}{6.3} = \frac{\sin J^\circ}{9}$$

$$9 \cdot \sin 43^\circ = 6.3 \sin J^\circ$$

$$0.9743 = \sin J^\circ$$

$$J^\circ = 76.98$$

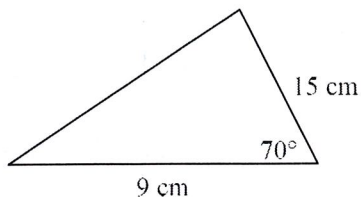
$$77.0^\circ$$

11. In $\triangle XYZ$, $x = 12$ mm, $y = 11$ mm, and $m\angle Z = 52^\circ$. Find $m\angle X$.

69°

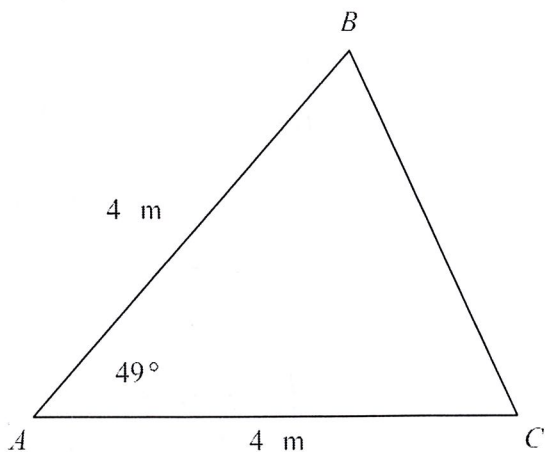
Find the area of the triangle. Give the answer to the nearest tenth. The drawing may not be to scale.

- 12.



63.4 cm^2

13. Find the area of the triangle. Round your answer to the nearest tenth.



6.0 m^2

14. A gardener needs to cultivate a triangular plot of land. One angle of the garden is 47° , and two sides adjacent to the angle are 77 feet and 76 feet. To the nearest tenth, what is the area of the plot of land?

2139.9 ft^2