

Geometry

Unit: Right Triangles and Trigonometry

Section: Law of Sines and Law of Cosines

Review Worksheet KEY

1) Find the missing parts of triangle ABC if $a = 32$, $b = 27$ and $m\angle A = 41^\circ$.

$$\frac{\sin A}{a} = \frac{\sin B}{b}$$

$$\frac{\sin 41^\circ}{32} = \frac{\sin B}{27}$$

$$27 \sin 41^\circ = 32 \sin B$$

$$\frac{27 \sin 41^\circ}{32} = \sin B$$

$$0.5535 \approx \sin B$$

$$m\angle B \approx 33.61^\circ$$

$$m\angle C = 180 - 41 - 33.61 = 105.39^\circ$$

$$\frac{\sin A}{a} = \frac{\sin C}{c}$$

$$\frac{\sin 41^\circ}{32} = \frac{\sin 105.39^\circ}{c}$$

$$c \sin 41^\circ = 32 \sin 105.39^\circ$$

$$c = \frac{32 \sin 105.39^\circ}{\sin 41^\circ} \approx 47.03$$

2) Find the missing parts of triangle XYZ if $x = 16$, $y = 12$ and $z = 20$.

$$16^2 = 12^2 + 20^2 - 2(12)(20) \cos X$$

$$256 = 144 + 400 - 480 \cos X$$

$$-288 = -480 \cos X$$

$$0.6 = \cos X$$

$$m\angle X \approx 53.13^\circ$$

$$\frac{\sin X}{x} = \frac{\sin Y}{y}$$

$$\frac{\sin 53.13^\circ}{16} = \frac{\sin Y}{12}$$

$$12 \sin 53.13^\circ = 16 \sin Y$$

$$\frac{12 \sin 53.13^\circ}{16} = \sin Y$$

$$0.6000 \approx \sin Y$$

$$m\angle Y \approx 36.87^\circ$$

$$m\angle Z = 180 - 53.13 - 36.87 = 90^\circ$$