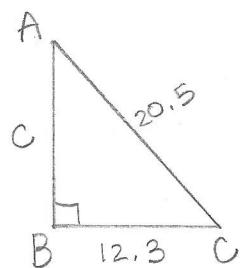


Round angles to the nearest degree and side lengths to one place after the decimal.

1. In ΔABC , $\angle B = 90^\circ$, $b = 20.5 \text{ cm}$, $a = 12.3 \text{ cm}$. Solve the triangle. Include a diagram as part of your solution. Use only primary trig ratios.



$$\textcircled{1} \quad \cos C = \frac{12.3}{20.5} \quad \checkmark$$

$$\textcircled{2} \quad \angle A = 180^\circ - 90^\circ - 53^\circ \text{ (CAST)} \quad \checkmark$$

$$\angle C = \cos^{-1}\left(\frac{12.3}{20.5}\right)$$

$$\angle C \approx 53^\circ \quad \checkmark$$

$$\textcircled{3} \quad \sin C = \frac{a}{c} \quad \text{or}$$

$$\sin 53^\circ = \frac{a}{c} \quad \checkmark$$

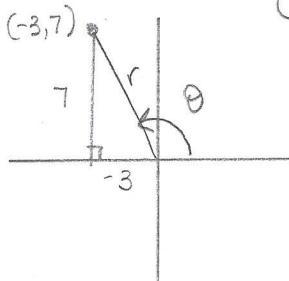
$$\therefore c = 20.5(\sin 53^\circ) \\ c \approx 16.4 \text{ cm}$$

$$c^2 = 20.5^2 - 12.3^2$$

$$c = \sqrt{20.5^2 - 12.3^2}$$

$$c = 16.4$$

2. The point $(-3, 7)$ lies on the terminal arm for angle θ . Determine the primary trig ratios for angle θ . Leave as exact answers.



$$\textcircled{1} \quad r^2 = (-3)^2 + 7^2$$

$$r = \pm \sqrt{9 + 49}$$

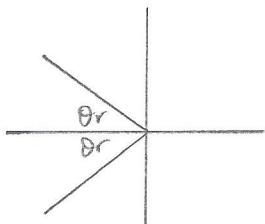
$$r = \sqrt{58} \quad \checkmark$$

$$\textcircled{2} \quad \sin \theta = \frac{7}{\sqrt{58}}$$

$$\cos \theta = \frac{-3}{\sqrt{58}} \quad \checkmark$$

$$\tan \theta = \frac{7}{-3} \quad \checkmark$$

3. Determine the value(s) of θ for $0^\circ \leq \theta \leq 360^\circ$, given that $\cos \theta = -0.8971$. Show necessary work.



$$\theta_r = \cos^{-1}(0.8971) \quad \checkmark$$

$$\theta_r \approx 26^\circ$$

$$\text{Q2: } \theta = 180^\circ - 26^\circ \\ = 154^\circ \quad \checkmark$$

$$\text{Q3: } \theta = 180^\circ + 26^\circ \\ = 206^\circ \quad \checkmark$$

$$\therefore \theta = \{154^\circ, 206^\circ\}$$

4

4

3