

SOLUTIONS \Rightarrow Trigonometry Worksheet # 2

1. $\cos A = 0.9563$ 2. $\cos W = 0.7071$
 $A = \cos^{-1} 0.9563$ $W = \cos^{-1} 0.7071$
 $A = 17^\circ$ $W = 45^\circ$

3. $\cos A = 0.0698$ 4. $\sin A = 0.6561$
 $A = \cos^{-1} 0.0698$ $A = \sin^{-1} 0.6561$
 $A = 86^\circ$ $A = 41^\circ$

5. $\tan V = 0.7265$ 6. $\cos Z = 0.5592$
 $V = \tan^{-1} 0.7265$ $Z = \cos^{-1} 0.5592$
 $V = 36^\circ$ $Z = 56^\circ$

7. One of the following:

$$\begin{array}{lll} \sin \theta = \frac{\text{opp}}{\text{hyp}} & \cos \theta = \frac{\text{adj}}{\text{hyp}} & \tan \theta = \frac{\text{opp}}{\text{adj}} \\ \sin \theta = \frac{72}{78} & \cos \theta = \frac{30}{78} & \tan \theta = \frac{72}{30} \\ \sin \theta = 0.9231 & \cos \theta = 0.3846 & \tan \theta = 2.4000 \\ \theta = \sin^{-1} 0.9231 & \theta = \cos^{-1} 0.3846 & \theta = \tan^{-1} 2.4000 \\ \theta = 67^\circ & \theta = 67^\circ & \theta = 67^\circ \end{array}$$

8. One of the following:

$$\begin{array}{lll} \sin \theta = \frac{\text{opp}}{\text{hyp}} & \cos \theta = \frac{\text{adj}}{\text{hyp}} & \tan \theta = \frac{\text{opp}}{\text{adj}} \\ \sin \theta = \frac{77}{85} & \cos \theta = \frac{36}{85} & \tan \theta = \frac{77}{36} \\ \sin \theta = 0.9059 & \cos \theta = 0.4235 & \tan \theta = 2.1389 \\ \theta = \sin^{-1} 0.9059 & \theta = \cos^{-1} 0.4235 & \theta = \tan^{-1} 2.1389 \\ \theta = 65^\circ & \theta = 65^\circ & \theta = 65^\circ \end{array}$$

9. One of the following:

$$\sin \theta = \frac{\text{opp}}{\text{hyp}}$$

$$\cos \theta = \frac{\text{adj}}{\text{hyp}}$$

$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

$$\sin \theta = \frac{54}{90}$$

$$\cos \theta = \frac{72}{90}$$

$$\tan \theta = \frac{54}{72}$$

$$\sin \theta = 0.6000$$

$$\cos \theta = 0.8000$$

$$\tan \theta = 0.7500$$

$$\theta = \sin^{-1} 0.6000$$

$$\theta = \cos^{-1} 0.8000$$

$$\theta = \tan^{-1} 0.7500$$

$$\theta = 37^\circ$$

$$\theta = 37^\circ$$

$$\theta = 37^\circ$$

10. One of the following:

$$\sin \theta = \frac{\text{opp}}{\text{hyp}}$$

$$\cos \theta = \frac{\text{adj}}{\text{hyp}}$$

$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

$$\sin \theta = \frac{65}{97}$$

$$\cos \theta = \frac{72}{97}$$

$$\tan \theta = \frac{65}{72}$$

$$\sin \theta = 0.6701$$

$$\cos \theta = 0.7423$$

$$\tan \theta = 0.9028$$

$$\theta = \sin^{-1} 0.6701$$

$$\theta = \cos^{-1} 0.7423$$

$$\theta = \tan^{-1} 0.9028$$

$$\theta = 42^\circ$$

$$\theta = 42^\circ$$

$$\theta = 42^\circ$$

$$11. \tan \theta = \frac{\text{opp}}{\text{adj}}$$

$$\tan \theta = \frac{36}{37}$$

$$\tan \theta = 0.9730$$

$$\theta = \tan^{-1} 0.9730$$

$$\theta = 44^\circ$$

$$12. \cos \theta = \frac{\text{adj}}{\text{hyp}}$$

$$\cos \theta = \frac{10}{17}$$

$$\cos \theta = 0.5882$$

$$\theta = \cos^{-1} 0.5882$$

$$\theta = 54^\circ$$

$$13. \sin \theta = \frac{\text{opp}}{\text{hyp}}$$

$$\sin \theta = \frac{50}{58}$$

$$\sin \theta = 0.8621$$

$$\theta = \sin^{-1} 0.8621$$

$$\theta = 60^\circ$$

$$14. \tan \theta = \frac{\text{opp}}{\text{adj}}$$

$$\tan \theta = \frac{3}{4}$$

$$\tan \theta = 0.7500$$

$$\theta = \tan^{-1} 0.7500$$

$$\theta = 37^\circ$$

$$15. \cos \theta = \frac{\text{adj}}{\text{hyp}}$$

$$\cos \theta = \frac{20}{52}$$

$$\cos \theta = 0.3846$$

$$\theta = \cos^{-1} 0.3846$$

$$\theta = 67^\circ$$

$$16. \cos \theta = \frac{\text{adj}}{\text{hyp}}$$

$$\cos \theta = \frac{33}{55}$$

$$\cos \theta = 0.6000$$

$$\theta = \cos^{-1} 0.6000$$

$$\theta = 53^\circ$$

$$17. \tan \theta = \frac{\text{opp}}{\text{adj}}$$

$$\tan \theta = \frac{8}{10}$$

$$\tan \theta = 0.8000$$

$$\theta = \tan^{-1} 0.8000$$

$$\theta = 39^\circ$$

$$18. \sin \theta = \frac{\text{opp}}{\text{hyp}}$$

$$\sin \theta = \frac{43}{47}$$

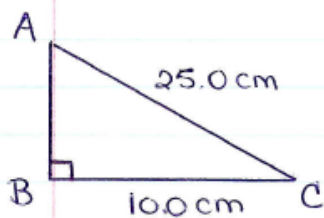
$$\sin \theta = 0.9149$$

$$\theta = \sin^{-1} 0.9149$$

$$\theta = 66^\circ$$

19. $\angle B = 90^\circ$ $AC = 25.0$ cm

a) $BC = 10.0$ cm



$$\sin A = \frac{\text{opp}}{\text{hyp}}$$

$$\sin A = \frac{10.0}{25.0}$$

$$\sin A = 0.4000$$

$$A = \sin^{-1} 0.4000$$

$$A = 24^\circ$$

$$\cos C = \frac{\text{adj}}{\text{hyp}}$$

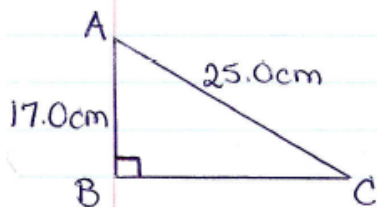
$$\cos C = \frac{10.0}{25.0}$$

$$\cos C = 0.4000$$

$$C = \cos^{-1} 0.4000$$

$$C = 66^\circ$$

b) $AB = 17.0$ cm



$$\cos A = \frac{\text{adj}}{\text{hyp}}$$

$$\cos A = \frac{17.0}{25.0}$$

$$\cos A = 0.6800$$

$$A = \cos^{-1} 0.6800$$

$$A = 47^\circ$$

$$\sin C = \frac{\text{opp}}{\text{hyp}}$$

$$\sin C = \frac{17.0}{25.0}$$

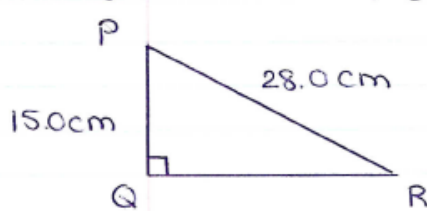
$$\sin C = 0.6800$$

$$C = \sin^{-1} 0.6800$$

$$C = 43^\circ$$

20. $\angle Q = 90^\circ$ $PQ = 15.0 \text{ cm}$

a) $PR = 28.0 \text{ cm}$



$$\cos P = \frac{\text{adj}}{\text{hyp}}$$

$$\cos P = \frac{15.0}{28.0}$$

$$\cos P = 0.5357$$

$$P = \cos^{-1}(0.5357)$$

$$P = 58^\circ$$

$$\sin R = \frac{\text{opp}}{\text{hyp}}$$

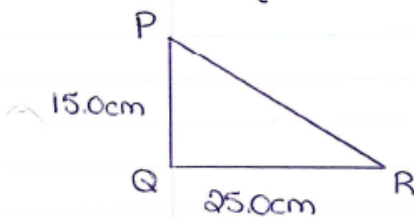
$$\sin R = \frac{15.0}{28.0}$$

$$\sin R = 0.5357$$

$$R = \sin^{-1}(0.5357)$$

$$R = 32^\circ$$

b) $QR = 25.0 \text{ cm}$



$$\tan P = \frac{\text{opp}}{\text{adj}}$$

$$\tan P = \frac{25.0}{15.0}$$

$$\tan P = 1.6667$$

$$P = \tan^{-1} 1.6667$$

$$P = 59^\circ$$

$$\tan R = \frac{\text{opp}}{\text{adj}}$$

$$\tan R = \frac{15.0}{25.0}$$

$$\tan R = 0.6000$$

$$R = \tan^{-1} 0.6000$$

$$R = 31^\circ$$