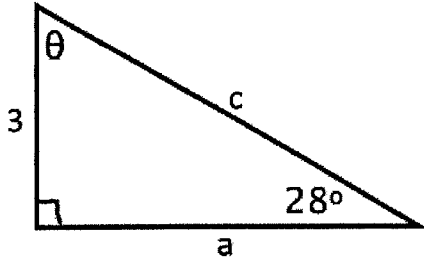


3. Find each missing side and angle. Round answers to the nearest hundredth. Show work.



$$\tan 28 = \frac{3}{a}$$

$$\sin 28 = \frac{3}{c}$$

$$a = \frac{3}{\tan 28} = 5.64$$

$$c = \frac{3}{\sin 28}$$

$$c = 6.39$$

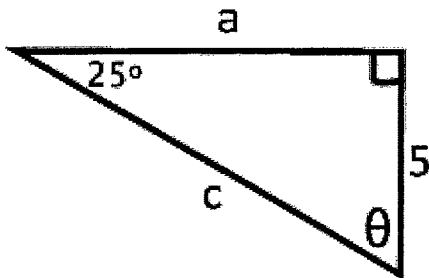
$$\theta = 90 - 28 = 62^\circ$$

$$a = \underline{5.64}$$

$$c = \underline{6.39}$$

$$\theta = \underline{62^\circ}$$

4. Find each missing side and angle. Round answers to the nearest hundredth. Show work.



$$\tan 25 = \frac{5}{a}$$

$$\sin 25 = \frac{5}{c}$$

$$a = \frac{5}{\tan 25}$$

$$c = \frac{5}{\sin 25}$$

$$a = 10.72$$

$$c = 11.83$$

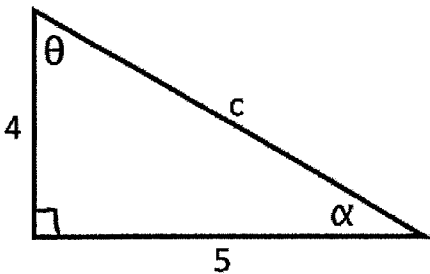
$$\theta = 90 - 25 = 65^\circ$$

$$a = \underline{10.72}$$

$$c = \underline{11.83}$$

$$\theta = \underline{65^\circ}$$

5. Find each missing side and angle. Round answers to the nearest hundredth. Show work.



$$\tan \theta = \frac{5}{4}$$

$$\alpha = 90 - 51.34$$

$$= 38.66$$

$$\theta = 51.34$$

$$4^2 + 5^2 = c^2$$

$$41 = c^2$$

$$c = 6.40$$

$$c = \underline{6.40}$$

$$\alpha = \underline{38.66}$$

$$\theta = \underline{51.34}$$

6. Solve triangle ABC with $a = 6$, $A = 31^\circ$, and $B = 16^\circ$. (Find all missing sides and angles)

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

$$\angle C = 180 - (31 + 16) = \boxed{133^\circ}$$

$$\frac{\sin 31}{6} = \frac{\sin 16}{b}$$

$$\frac{\sin A}{a} = \frac{\sin C}{c} \rightarrow \frac{\sin 31}{6} = \frac{\sin 133}{c}$$

$$\boxed{b = 3.21}$$

$$\boxed{c = 8.52}$$

7. Solve triangle ABC given that $A = 44^\circ$, $B = 42^\circ$, and $b = 64$. (Find all missing sides and angles)

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

$$\angle C = 180 - (44 + 42) = \boxed{94^\circ}$$

$$\frac{\sin 44}{a} = \frac{\sin 42}{64}$$

$$\frac{\sin B}{b} = \frac{\sin C}{c} \rightarrow \frac{\sin 42}{64} = \frac{\sin 94}{c}$$

$$\boxed{a = 66.44}$$

$$\boxed{c = 95.41}$$

8. Solve triangle ABC with $b = 3$, $c = 9$, and $A = 98^\circ$. (Find all missing sides and angles)

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

$$a^2 = 3^2 + 9^2 - 2(3)(9) \cos 98$$

$$\boxed{a = 9.87}$$

$$C = 180 - (98 + 17.52) = 64.5^\circ$$

OR...

$$\frac{\sin 98}{9.87} = \frac{\sin C}{9} \rightarrow$$

$$\boxed{C = 64.55^\circ}$$

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

$$\frac{\sin 98}{9.87} = \frac{\sin B}{3} \rightarrow \boxed{B = 17.52^\circ}$$

9. Solve triangle ABC given that $a = 20$, $b = 21$, and $c = 10$. (Find all missing sides and angles)

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

$$21^2 = 20^2 + 10^2 - 2(20)(10) \cos B$$

$$441 = 500 - 400 \cos B$$

$$-59 = -400 \cos B$$

$$0.1475 = \cos B$$

$$\boxed{81.52^\circ = B}$$

$$\frac{\sin 81.52}{21} = \frac{\sin A}{20} \quad \boxed{A = 70.38^\circ}$$

$$\angle C = 180 - (81.52 + 70.38)$$

$$\boxed{C = 28.1^\circ}$$