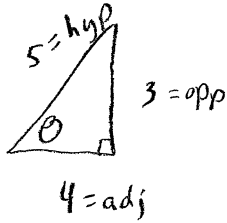
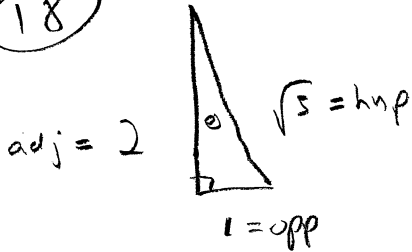


10



$\sin \theta = \frac{\text{opp}}{\text{hyp}} = \frac{3}{5}$	$\csc \theta = \frac{\text{hyp}}{\text{opp}} = \frac{5}{3}$
$\cos \theta = \frac{\text{adj}}{\text{hyp}} = \frac{4}{5}$	$\sec \theta = \frac{\text{hyp}}{\text{adj}} = \frac{5}{4}$
$\tan \theta = \frac{\text{opp}}{\text{adj}} = \frac{3}{4}$	$\cot \theta = \frac{\text{adj}}{\text{opp}} = \frac{4}{3}$

18



$$(\sqrt{5})^2 = a^2 + 2^2$$

$$5 = a^2 + 4$$

$$a^2 = 5 - 4$$

$$a^2 = 1$$

$$a = \sqrt{1} = 1$$

$$\sin \theta = \frac{1}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{\sqrt{5}}{5}$$

$$\csc \theta = \sqrt{5}$$

$$\tan \theta = \frac{1}{2}$$

$$\cos \theta = \frac{2}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{2\sqrt{5}}{5}$$

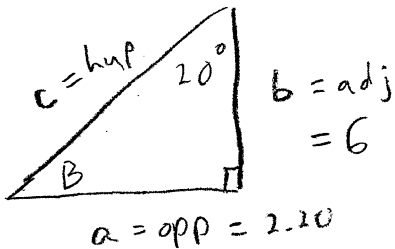
$$\sec \theta = \frac{\sqrt{5}}{2}$$

$$\cot \theta = 2$$

20) $\tan 12^\circ - \cot 78^\circ$

$$= \cot 78^\circ - \cot 78^\circ = 0$$

34) $b = 6$, $A = 20^\circ$, find a , c , and B



$$\left[\cos 20^\circ = \frac{6}{c} \right] \Leftrightarrow \left[c = \frac{6}{\cos 20^\circ} \approx 6.39 \right]$$

$$c^2 = a^2 + b^2$$

$$(6.39)^2 = a^2 + 6^2$$

$$a^2 = \frac{6^2}{\cos^2 20^\circ} - 6^2$$

$$a^2 = 4.769075932 \Rightarrow$$

$$a = \sqrt{4.769075932} \approx 2.18$$

34

~~$$\tan \theta = \frac{2.18}{6}$$

$$\theta = \tan^{-1}\left(\frac{2.18}{6}\right) \approx 20.0^\circ$$~~

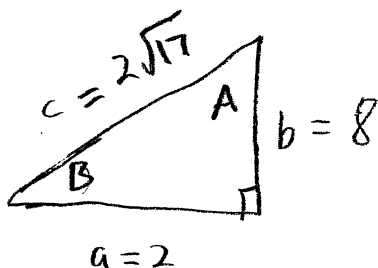
$$B = 90^\circ - 20^\circ = 70^\circ$$

$$c = 6.39$$

$$a = 2.18$$

$$B = 70.0^\circ$$

40) $a=2, b=8$, find c, A and B



$$c^2 = a^2 + b^2$$

$$c^2 = 2^2 + 8^2$$

$$c^2 = 4 + 64$$

$$c^2 = 68$$

$$c = \sqrt{68}$$

$$c = \sqrt{4 \cdot 17} = \sqrt{4} \sqrt{17}$$

$$c = 2\sqrt{17}$$

$$\tan B = \frac{8}{2} = 4 \quad \text{or,} \quad \tan B = 4$$

$$B = \tan^{-1}(4) = 76.0^\circ$$

~~402~~ $\tan A = \frac{2}{8}$ or $\tan \theta = \frac{1}{4}$

$$\text{so } \theta = \tan^{-1}\left(\frac{1}{4}\right) = 14^\circ$$

or find A with

$$A = 90^\circ - B$$

$$= 90^\circ - 76^\circ$$

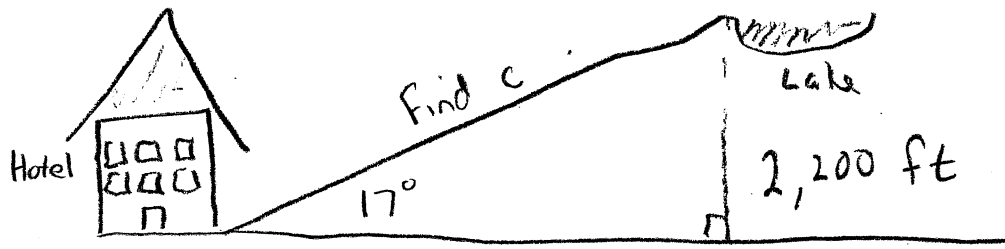
$$= 14^\circ$$

$$c = 2\sqrt{17}$$

$$A = 14^\circ$$

$$B = 76^\circ$$

(62)



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

$$\sin 17^\circ = \frac{2200}{c}$$

$$c \cdot \sin 17^\circ = c \cdot \frac{2200}{c}$$

$$c \sin 17^\circ = 2200$$

$$c = \frac{2200}{\sin 17^\circ} \approx 7524.67 \text{ ft}$$