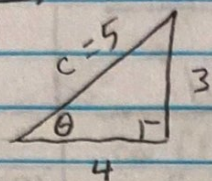


# SOLUTIONS FOR CH 7 PRECALC STUDY GUIDE

## TOPIC 1

p536

2)



$$\begin{aligned} 3^2 + 4^2 &= c^2 \\ 9 + 16 &= c^2 \\ 25 &= c^2 \\ c &= 5 \end{aligned}$$

$$\sin \theta = \frac{3}{5}$$

$$\csc \theta = \frac{5}{3}$$

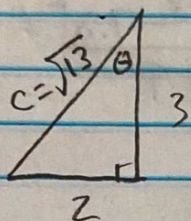
$$\cos \theta = \frac{4}{5}$$

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

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

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

3)



$$\begin{aligned} 3^2 + 2^2 &= c^2 \\ 9 + 4 &= c^2 \\ 13 &= c^2 \\ c &= \sqrt{13} \end{aligned}$$

$$\sin \theta = \frac{2}{\sqrt{13}} = \frac{2\sqrt{13}}{13}$$

$$\csc \theta = \frac{\sqrt{13}}{2}$$

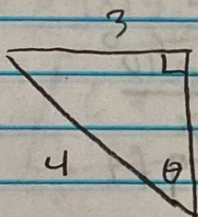
$$\cos \theta = \frac{3}{\sqrt{13}} = \frac{3\sqrt{13}}{13}$$

$$\sec \theta = \frac{\sqrt{13}}{3}$$

$$\tan \theta = \frac{2}{3}$$

$$\cot \theta = \frac{3}{2}$$

6)



$$\begin{aligned} a^2 + 3^2 &= 4^2 \\ a^2 &= 16 - 9 \\ a^2 &= 7 \\ a &= \sqrt{7} \end{aligned}$$

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

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

$$\cos \theta = \frac{\sqrt{7}}{4}$$

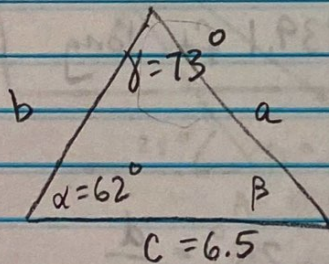
$$\sec \theta = \frac{4}{\sqrt{7}} = \frac{4\sqrt{7}}{7}$$

$$\tan \theta = \frac{3}{\sqrt{7}} = \frac{3\sqrt{7}}{7}$$

$$\cot \theta = \frac{\sqrt{7}}{3}$$

## TOPIC 2

a)



$$\beta = \underline{45^\circ}$$

$$180 - 73 - 62 = 45$$

$$a = \underline{6.00}$$

$$\frac{\sin 62^\circ}{a} = \frac{\sin 73^\circ}{6.5}$$

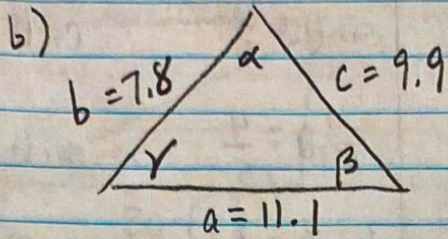
$$b = \underline{4.81}$$

$$\frac{\sin 45^\circ}{b} = \frac{\sin 73^\circ}{6.5}$$

$$\text{Area} = \underline{13.77}$$

$$A = \frac{1}{2} ab \sin \gamma$$

$$= \frac{1}{2} \cdot 6.0 \cdot 4.81 \sin 73^\circ$$



$$\alpha = 76.7^\circ$$

$$\beta = 43.1^\circ$$

$$\gamma = 60.2^\circ \quad 180 - 76.7 - 43.1$$

$$\text{Area} = 37.57 \quad \frac{1}{2} \cdot 11.1 \cdot 7.8 \sin 60.2^\circ$$

$$\cos \alpha = \frac{7.8^2 + 9.9^2 - 11.1^2}{2 \cdot 7.8 \cdot 9.9}$$

$$\cos \alpha = .2308$$

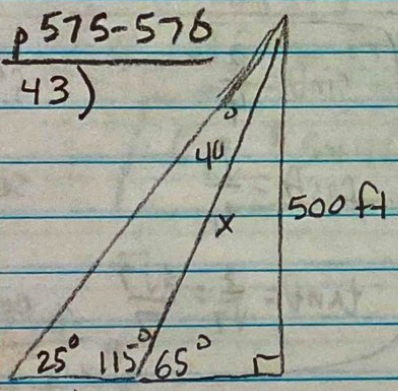
$$\alpha = 76.7^\circ$$

$$\cos \beta = \frac{11.1^2 + 9.9^2 - 7.8^2}{2 \cdot 11.1 \cdot 9.9}$$

$$\cos \beta = .7297$$

$$\beta = 43.1^\circ$$

TOPIC 3



$y$   
↳ this is answer

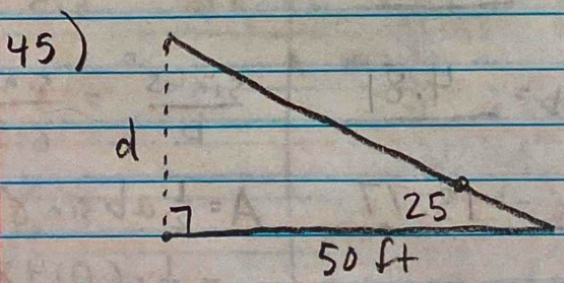
$$\frac{\sin 65^\circ}{500} = \frac{\sin 90^\circ}{x}$$

$$x = 551.7 \text{ ft}$$

$$\frac{\sin 25^\circ}{551.7} = \frac{\sin 40^\circ}{y}$$

$$y = 839.1$$

Lake is 839.1 ft long



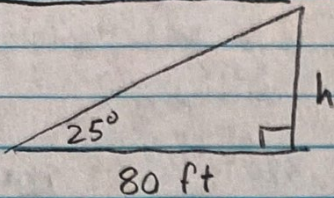
$$\tan 25^\circ = \frac{d}{50}$$

$$d = 50 \tan 25^\circ$$

$$d = 23.3 \text{ ft}$$

p575-576 CONTINUED

46)

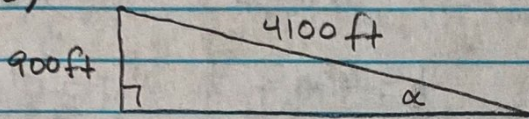


$$\tan 25^\circ = \frac{h}{80}$$

$$h = 80 \tan 25^\circ$$

$$h = 37.3 \text{ ft}$$

48)



$$\sin \alpha = \frac{900}{4100}$$

$$\alpha = \sin^{-1}\left(\frac{9}{41}\right) = 12.7^\circ$$

p561

$$27) \quad s = \frac{1}{2} (100 + 50 + 75) = 112.5$$

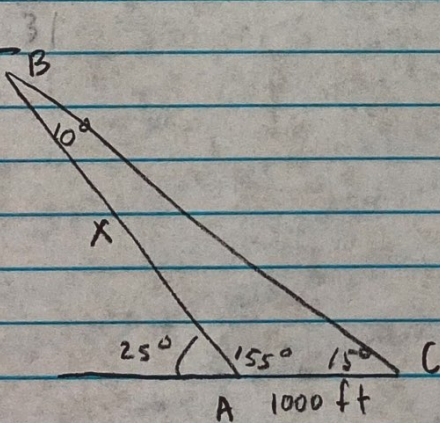
$$A = \sqrt{112.5(112.5-100)(112.5-50)(112.5-75)}$$

$$A = 1815.46 \text{ ft}^2 \times \$3/\text{ft}^2$$

$$C = \$5446.38$$

p548

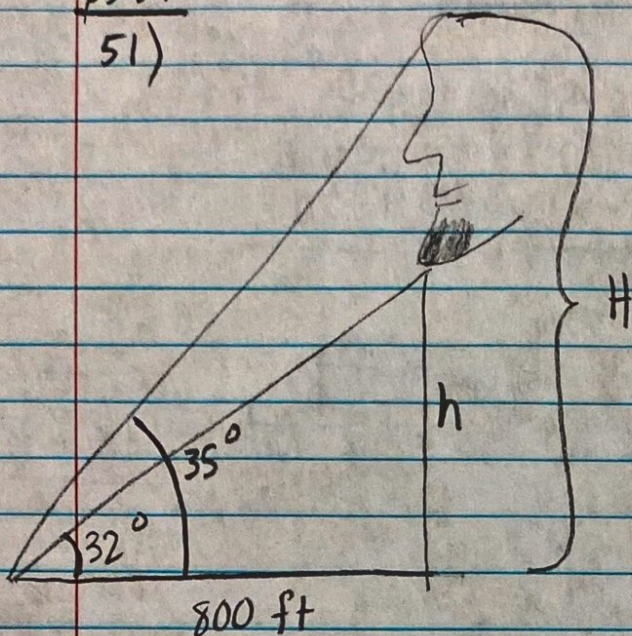
31)



$$\frac{\sin 10^\circ}{1000} = \frac{\sin 15^\circ}{X}$$

$$X = 1490.5'$$

p537  
51)



$$\tan 32^\circ = \frac{h}{800} \quad \tan 35^\circ = \frac{H}{800}$$

$$h = 800 \tan 32^\circ \quad H = 800 \tan 35^\circ$$

$$h = 499.9 \quad H = 560.2$$

$$\text{Lincoln's Face} = 560.2 - 499.9$$

$$= 60.3 \text{ ft}$$