

Unit 5 Review - Answer Key

① $250^\circ \cdot \frac{\pi}{180^\circ} = \boxed{\frac{25\pi}{18}}$

② $\frac{x}{2\pi} = \frac{25}{150\pi}$

$150\pi x = 50\pi$

$x = \frac{1}{3}$ radian

③ $\frac{50^\circ}{360^\circ} = \frac{x}{4\pi}$

$360x = 200\pi$

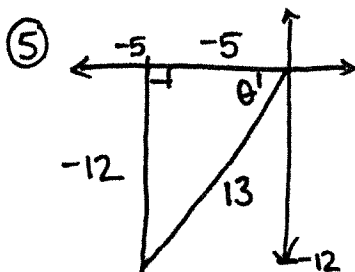
$x = 1.75$ ft

④ a) $\sin\left(\frac{3\pi}{4}\right) = \boxed{\frac{\sqrt{2}}{2}}$

b) $\tan\left(\frac{23\pi}{6}\right) = \tan\left(\frac{11\pi}{6}\right) = \boxed{-\frac{\sqrt{3}}{3}}$

c) $\sec\left(\frac{13\pi}{4}\right) = \sec\left(\frac{5\pi}{4}\right) = \frac{-2}{\sqrt{2}} = \frac{-2\sqrt{2}}{2} = \boxed{-\sqrt{2}}$

d) $\cos\left(-\frac{5\pi}{6}\right) = \cos\left(\frac{7\pi}{6}\right) = \boxed{-\frac{\sqrt{3}}{2}}$

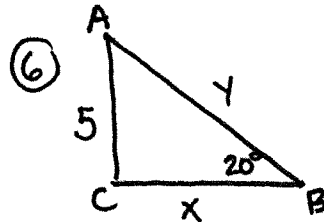


$(5)^2 + (12)^2 = c^2$
 $c = 13$

$\sin \theta = -12/13$ $\csc \theta = -13/12$

$\cos \theta = -5/13$ $\sec \theta = -13/5$

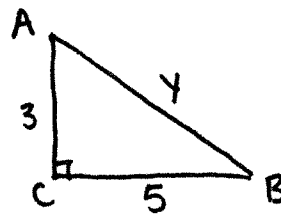
$\tan \theta = 12/5$ $\cot \theta = 5/12$



$\tan 20^\circ = \frac{5}{x}$
 $x = 13.74$

$\sin 20^\circ = \frac{5}{y}$
 $y = 14.62$

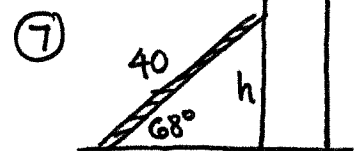
$\angle A = 70^\circ$
 $x = 13.74$
 $y = 14.62$



$3^2 + 5^2 = y^2$
 $y = \sqrt{34}$

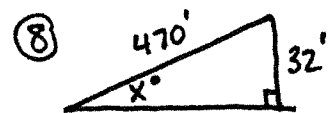
$\tan A = 5/3$
 $A = \tan^{-1}(5/3)$
 $A = 59.04^\circ$

$y = \sqrt{34}$
 $\angle A = 59.04^\circ$
 $\angle B = 30.96^\circ$



$\sin 68^\circ = \frac{h}{40}$

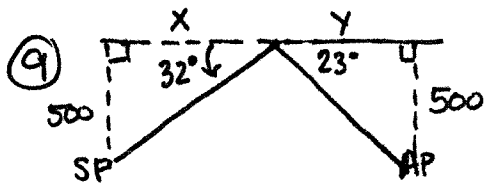
$h = 37.09$ ft.



$\sin(x^\circ) = \frac{32}{470}$

$x = \sin^{-1}\left(\frac{32}{470}\right)$

$x = 3.9^\circ$



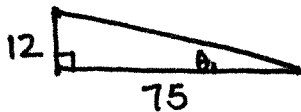
$$\tan 32^\circ = \frac{500}{x} \quad \tan 23^\circ = \frac{500}{y}$$

$$x = \frac{500}{\tan 32^\circ} \quad y = \frac{500}{\tan 23^\circ}$$

$$x = 800.17 \text{ feet} \quad y = 1177.93$$

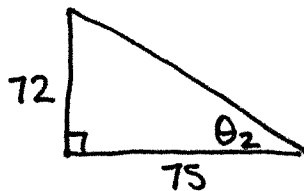
$$\boxed{\text{distance} = 1978.10 \text{ feet}}$$

⑩ Two triangles



$$\tan(\theta_1) = \frac{12}{75}$$

$$\theta_1 = 9.09^\circ$$



$$\tan(\theta_2) = \frac{72}{75}$$

$$\theta_2 = 43.83^\circ$$

$$\theta = \theta_2 - \theta_1 = \boxed{34.74^\circ}$$