MAT140
HW #4

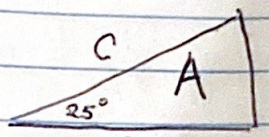
Brianna Hayes

1) 150°

$\frac{\pi}{180} = \frac{5\pi}{6}$

1) D

2)



Area $= \pi \cdot r^2$

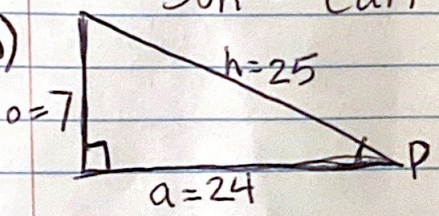
$r^2 = 3^2$

$\tan(25^\circ) = \frac{x}{3}$

2) B

Soh - Cah - Toa

3)



3) $\cos(P) = \frac{24}{25}$ $\quad \sec(P) = \frac{25}{24}$

$\sin(P) = \frac{7}{25}$ $\quad \csc(P) = \frac{25}{7}$

$\tan(P) = \frac{7}{24}$ $\quad \cot(P) = \frac{24}{7}$

4) $\sec^2 35^\circ - \tan^2 35^\circ$

$\tan^2\theta = \sec^2\theta + 1$

$-\tan^2\theta + 1 \quad -\tan^2\theta + 1$

$1 = \sec^2\theta - \tan^2\theta$

4) D

5) $\tan(\theta) = \frac{7}{\sqrt{15}}$. Find $\sin\theta$ and $\cos\theta$

$\tan = \frac{\text{opposite}}{\text{adjacent}}$

$\sin = \frac{\text{opposite}}{\text{hypotenuse}} \longrightarrow \sin\theta = \frac{7}{x}$

$\cos = \frac{\text{adjacent}}{\text{hypotenuse}} \longrightarrow \cos\theta = \frac{\sqrt{15}}{x}$

5) B

6) $\tan 70^\circ = \frac{\cos 20^\circ}{\cos 70^\circ} \rightarrow 0$

6) C

7) $\csc\theta = 2$, find $\csc\theta + \sec(90° - \theta)$ 7) D

$\frac{r}{y} = 2$ $\frac{r}{x}$

$2 + \sec(90° - \theta)$

8) $\sec 30° - \sin 45°$ 8) C

$\frac{2}{2}\left(\frac{2\sqrt{3}}{3}\right)\left(-\frac{\sqrt{2}}{2}\right)\frac{3}{3}$

$\frac{4\sqrt{3} - 3\sqrt{2}}{6}$

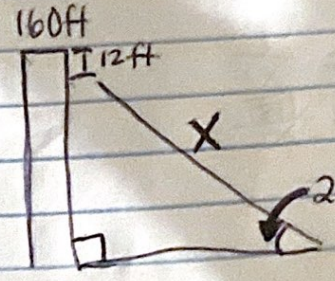
9) $\sin^2 60° - \cos^2 45° - \sin^2 30°$ 9) 0

$\sin^2 60° - \cos^2 45° = \sin^2 30°$

~~$\sin^2 60° \quad \cos^2 45°$~~ $- \sin^2 30°$

$\sin^2 60° - \cos^2 45° - \sin^2 30 = 0$

10)



$160 - 12 = 148$ ft

$\csc(20°) = \frac{\text{hypotenuse}}{\text{opp.}}$

$\csc(20°) = \frac{\text{hyp.}}{148} \cdot 148$

$\csc(20°) \cdot 148\text{ft} = 432.723$

The guy wire should be 432.7 feet long.