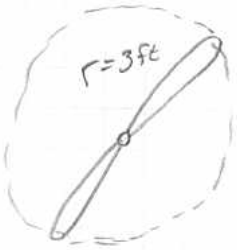
CH. 5 REVIEW EXERCISES # 20, 22, 30, 34, 36, 52, 56, 62, 68, 70

#20.

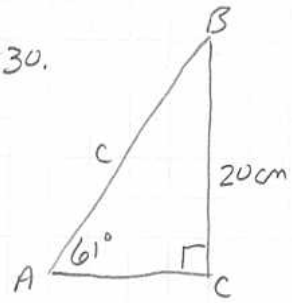


$$\frac{2250 \text{ REV}}{\text{MIN}} \times \frac{2\pi}{1 \text{ REV}} \times 3 \text{ ft} = \boxed{42{,}412 \text{ ft/min}}$$

#22. $\sin \frac{\pi}{6} + \tan^2 \frac{\pi}{3}$

$$\frac{1}{2} + (\sqrt{3})^2 = \frac{1}{2} + 3 = \boxed{3.5}$$

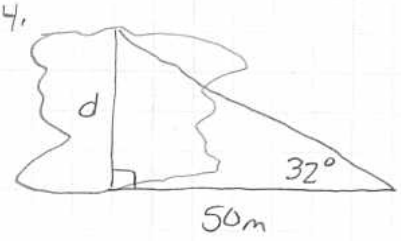
#30.



$$\sin 61° = \frac{20}{C}$$

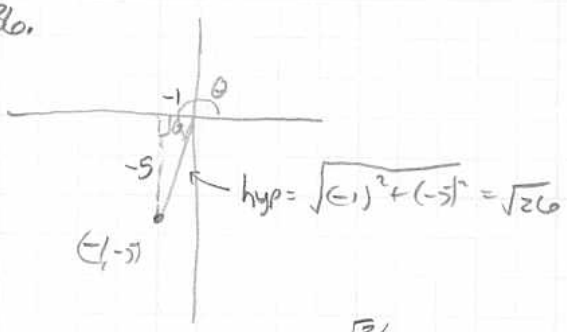
$$\boxed{C = \frac{20}{\sin 61°} \approx 23 \text{ cm}}$$

#34.



$$\tan 32° = \frac{d}{50} \quad \text{or} \quad \boxed{d = 50 \tan 32° \approx 31 \text{m}}$$

#36.

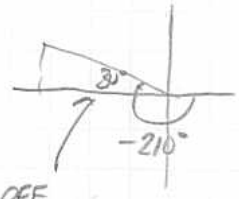


$$\sin\theta = \frac{-5}{\sqrt{26}} \qquad \csc\theta = -\frac{\sqrt{26}}{5}$$

$$\cos\theta = \frac{-1}{\sqrt{26}} \qquad \sec\theta = -\sqrt{26}$$

$$\tan\theta = \frac{-5}{-1} = 5 \qquad \cot\theta = \frac{1}{5}$$

52. $\cot(-210°) = \frac{\sqrt{3}/2}{-1/2} = \boxed{-\sqrt{3}}$

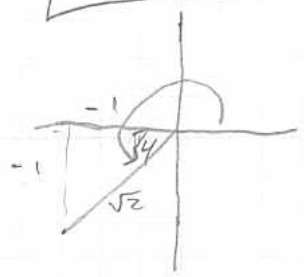


REF. ANGLE = 30°

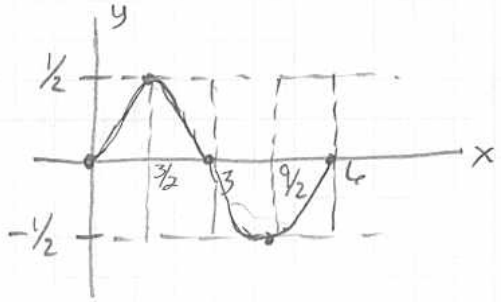
TOPS. 35500

56. $\tan \frac{13\pi}{4} = \tan \frac{5\pi}{4} = 1$

↑ COTERMINAL ANGLE



62. $y = \frac{1}{2} \sin \frac{\pi}{3} x$

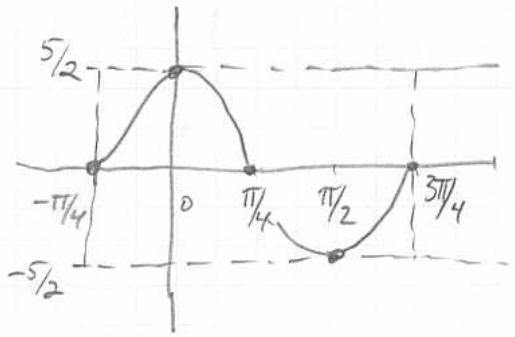


$\cdot \frac{3}{\pi}$ $\cdot \frac{3}{\pi}$

$0 \leq \frac{\pi}{3} x \leq 2\pi$

$0 \leq x \leq 6$

68. $y = \frac{5}{2} \sin\left(2x + \frac{\pi}{2}\right)$



$A = 5/2$

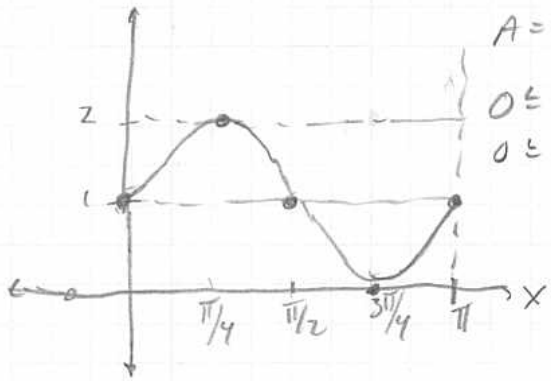
$0 \leq 2x + \pi/2 \leq 2\pi$

$-\pi/2 \leq 2x \leq 3\pi/2$

$-\pi/4 \leq x \leq 3\pi/4$

↑ PHASE SHIFT

#70. $y = \sin 2x + 1$



$A = 1$, $D = 1$

$0 \leq 2x \leq 2\pi$

$0 \leq x \leq \pi$