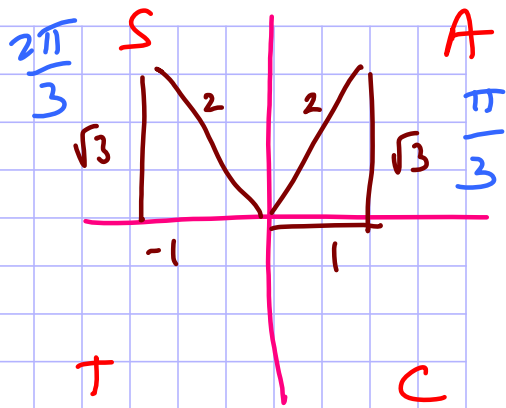


10.4 # 17 - 35 odd

$$17. \sin^{-1}\left(\frac{\sqrt{3}}{2}\right) = \theta \Rightarrow \sin \theta = \frac{\sqrt{3}}{2}$$



$$\theta = \frac{\pi}{3} + 2n\pi$$

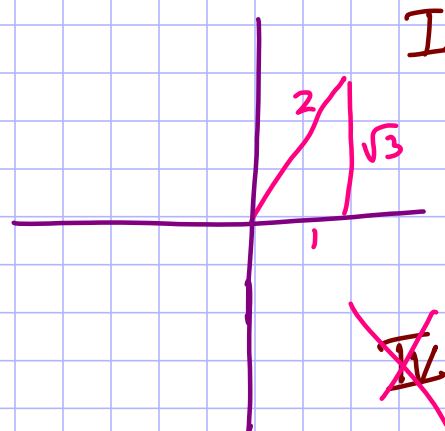
$$\theta = \frac{2\pi}{3} + 2n\pi, \text{ where } n \text{ is an integer}$$

(this covers all the co-terminals)

$$19. \sin^{-1}\left(\frac{\sqrt{3}}{2}\right) = \theta \Rightarrow \sin \theta = \frac{\sqrt{3}}{2}$$

$$\sin^{-1}x \text{ - domain } -\frac{\pi}{2} \leq \theta \leq \frac{\pi}{2}$$

$$-90^\circ \leq \theta \leq 90^\circ$$

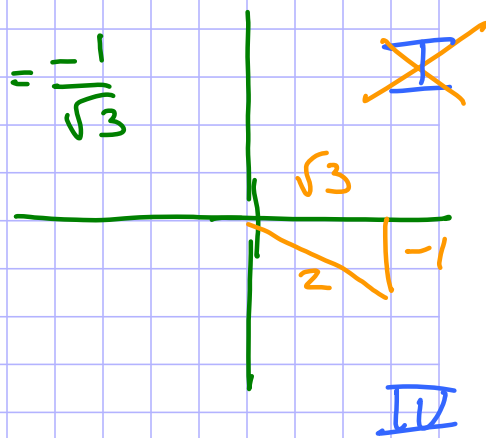


$$\theta = \frac{\pi}{3}; 60^\circ$$

$$21. \tan^{-1}\left(-\frac{\sqrt{3}}{3}\right) = \theta \Rightarrow \tan \theta = -\frac{\sqrt{3}}{3} = -\frac{1}{\sqrt{3}}$$

$$\tan^{-1}x \text{ - domain } : -\frac{\pi}{2} < \theta < \frac{\pi}{2}$$

$$-90^\circ < \theta < 90^\circ$$

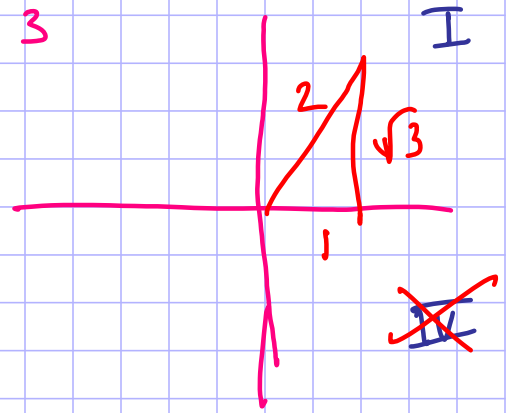


$$\theta = -\frac{\pi}{6}; -30^\circ$$

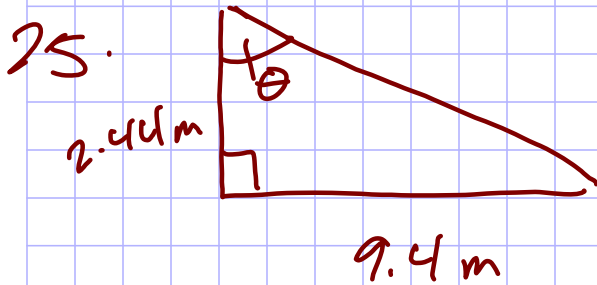
23.  $\tan^{-1}(\sqrt{3}) = \theta \Rightarrow \tan \theta = \sqrt{3}$

$\tan^{-1} x$  - domain:  $-\frac{\pi}{2} < \theta < \frac{\pi}{2}$

$-90^\circ < \theta < 90^\circ$



$\theta = \frac{\pi}{3}; 60^\circ$



Have:

opp = 9.4

adj = 2.44

Need:  $\theta = ?$

Do:  $\tan \theta = \frac{9.4}{2.44}$

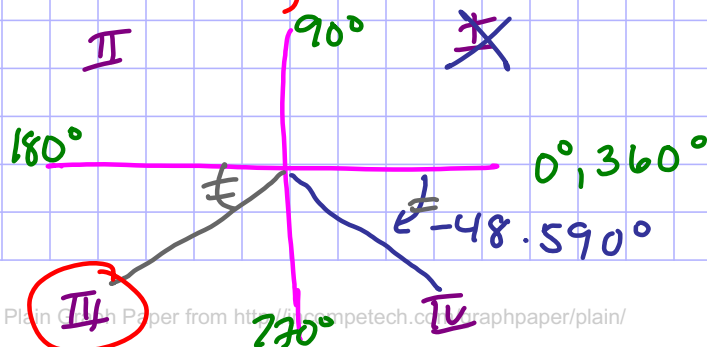
$\theta = \tan^{-1}\left(\frac{9.4}{2.44}\right)$

$\theta = 75.449^\circ$

27.  $\sin \theta = -0.75; 180^\circ < \theta < 270^\circ$

$\theta = \sin^{-1}(-0.75)$

$\sin^{-1} x$  - domain:  $-90^\circ \leq \theta \leq 90^\circ$



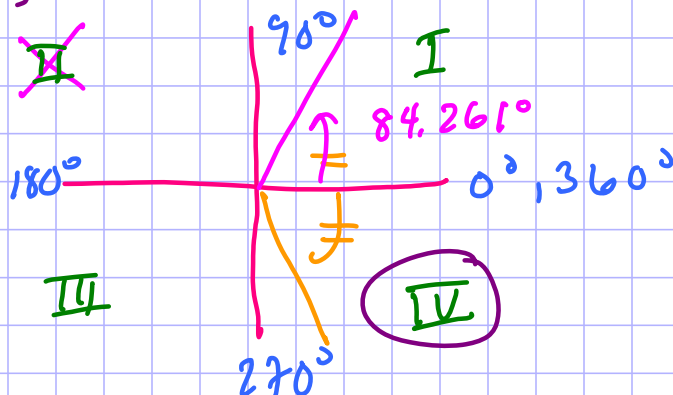
$$\theta = 180^\circ + 48.59^\circ = 228.59^\circ$$

29.  $\cos \theta = 0.1$  ;  $270^\circ < \theta < 360^\circ$

$$\theta = \cos^{-1}(0.1)$$

$\cos^{-1}(x)$  - domain

$$0 \leq \theta \leq 180^\circ$$

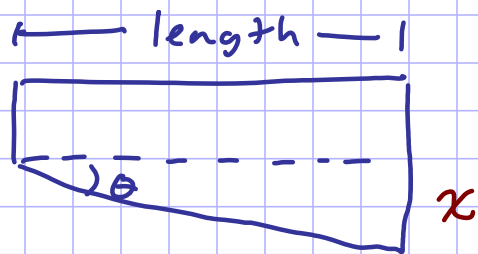


$$\theta = 360^\circ - 84.261^\circ = 275.739^\circ$$

31. (a) Pool A

$$\tan \theta = \frac{8-3}{38} = \frac{5}{38}$$

$$\theta = \tan^{-1}\left(\frac{5}{38}\right) = 7.496^\circ$$

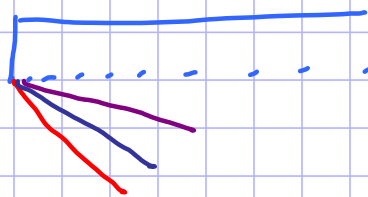


$x = \text{deep} - \text{shallow}$

Pool B

$$\tan \theta = \frac{6-2}{25} = \frac{4}{25}$$

$$\theta = \tan^{-1}\left(\frac{4}{25}\right) = 9.09^\circ$$



Pool C

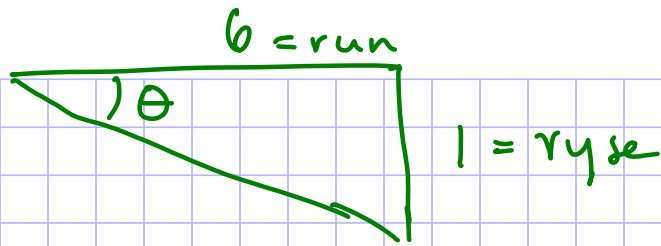
$$\tan \theta = \frac{7-2.5}{50} = \frac{4.5}{50}$$

$$\theta = \tan^{-1}\left(\frac{4.5}{50}\right) = 5.143^\circ$$

(b) since design

B has the largest angle, it will have the steepest slope.

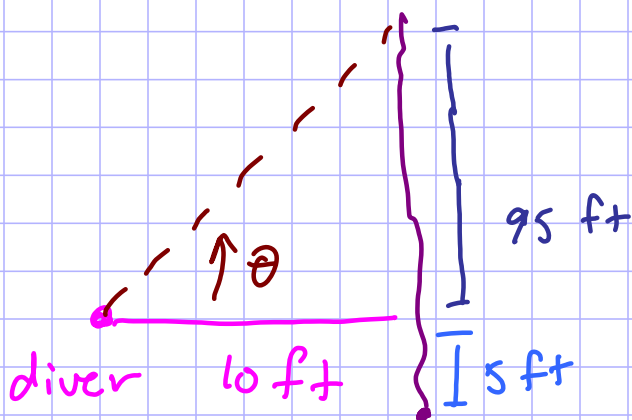
$$(c) m = \frac{1}{6}$$



$$\tan \theta = \frac{1}{6}$$

$$\theta = \tan^{-1} \left( \frac{1}{6} \right) = 9.462 \approx 9.5^\circ$$

33(a)

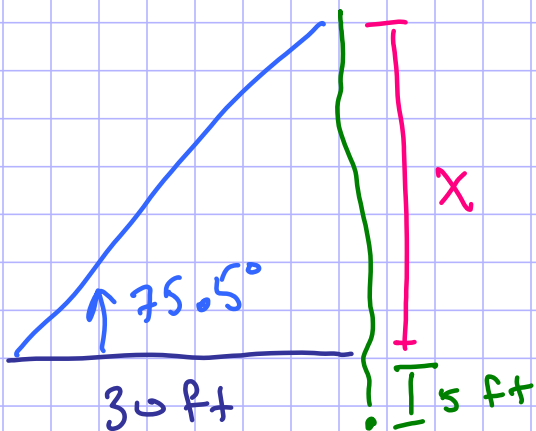


$$\tan \theta = \frac{95}{10}$$

$$\theta = \tan^{-1} \left( \frac{95}{10} \right)$$

$$\theta = 83.991^\circ$$

(b)



$$\tan 75.5^\circ = \frac{x}{30}$$

$$30 \tan 75.5^\circ = x$$

$$116.001 = x$$

$$\text{kelp height} = 121.001 \text{ ft}$$

$$35. \tan(\tan^{-1}(0.7)) = 0.7$$

Remember:  $f(g(x)) = x$  when  $f$  &  $g$  are inverses of each other!