



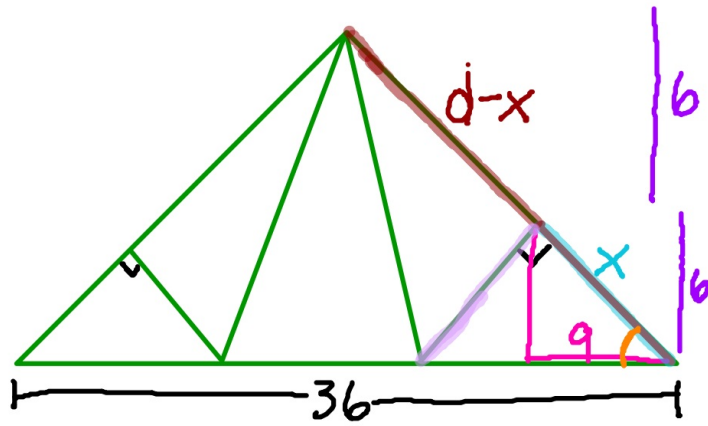
October 30

SWBAT:

Solve trig functions

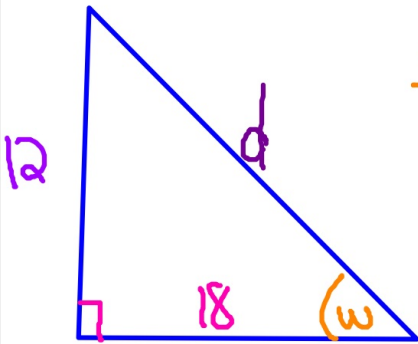
On your Test Friday

- graph all 6 trig functions (no transformations)
- graph and/or label transformations of all 6 trig functions
- graph the inverse of sine, cosine, and tangent
- find the inverse values of the 6 trig functions – using the unit circle
- solve inverse trig function problems
- solve application problems
- complete Quadrant 1 of the Unit Circle (Retention Quiz)



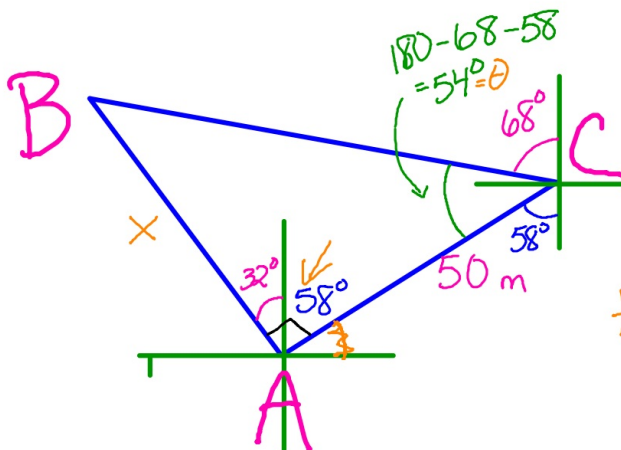
$$9^2 + 6^2 = x^2$$

$$\tan(w) = \frac{y}{x}$$



$$\tan^{-1}\left(\frac{12}{18}\right) = w$$

31



$$\tan(54) = \frac{x}{50}$$

Solve each equation:

$$3x(x - 5) = 0$$

$$\frac{3x}{3} = \frac{0}{3}$$

$$\boxed{x = 0}$$

$$x - 5 = 0$$

$$+5 \quad +5$$

$$\boxed{x = 5}$$

$$(x^2 - 4)(x + 3) = 0$$

$$x^2 - 4 = 0$$

$$+4 \quad +4$$

$$\sqrt{x^2} = \sqrt{4}$$

$$\boxed{x = \pm 2}$$

$$x + 3 = 0$$

$$-3 \quad -3$$

$$\boxed{x = -3}$$

$$x^2 - 5x + 7 = 1$$

$$-1 \quad -1$$

$$x^2 - 5x + 6 = 0$$

$$-2 \quad +3 = -5$$

$$-2 \quad x \quad -3 = 6$$

$$(x - 2)(x - 3) = 0$$

$$x - 2 = 0$$

$$x - 3 = 0$$

$$\boxed{x = 2}$$

$$\boxed{x = 3}$$

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

Solve:

$$2\cos(x) - 1 = 0$$

$$2\cos x - 1 = 0$$

$$+1 \quad +1$$

$$\frac{2\cos x}{2} = \frac{1}{2}$$

$$\cos x = \frac{1}{2}$$

$$2y - 1 = 0$$

$$+1 \quad +1$$

$$\frac{2y}{2} = \frac{1}{2}$$

$$y = \frac{1}{2}$$

$$\cos^{-1}(\cos x) = \cos^{-1}\left(\frac{1}{2}\right)$$

$$x = \cos^{-1}\left(\frac{1}{2}\right)$$

$$x = \frac{\pi}{3}, \frac{5\pi}{3}$$

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

Solve:

$$2\cos(\underline{2x}) = \sqrt{3}$$

$$\frac{2\cos(2x)}{2} = \frac{\sqrt{3}}{2}$$

$$\cos(2x) = \frac{\sqrt{3}}{2}$$

$$\cos^{-1}(\cos(2x)) = \cos^{-1}\left(\frac{\sqrt{3}}{2}\right)$$

$$2x = \cos^{-1}\left(\frac{\sqrt{3}}{2}\right)$$

$$\frac{2x}{2} = \frac{\pi}{6}, \frac{11\pi}{6}, \frac{13\pi}{6}, \frac{23\pi}{6}$$

$$x = \frac{\pi}{12}, \frac{11\pi}{12}, \frac{13\pi}{12}, \frac{23\pi}{12}$$

$$\frac{\pi}{6} + 2\pi$$

$$\frac{\pi}{6} + \frac{12\pi}{6}$$