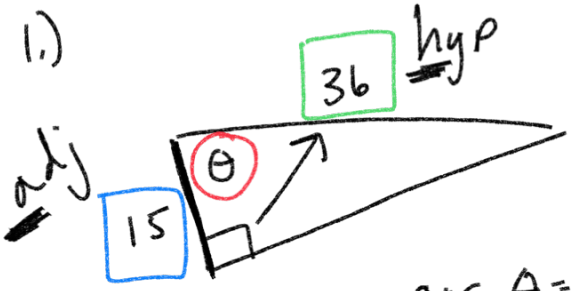
MTH-PT Trigonometry Session 9 2/23

1.)



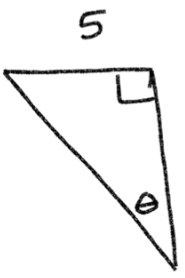
SOH CAH TOA ↑

$\cos\theta = \frac{adj}{hyp}$

$\cos\theta = \frac{15}{36}$

$\theta = \cos^{-1}\left(\frac{15}{36}\right) = \boxed{65.4^\circ}$

2.)



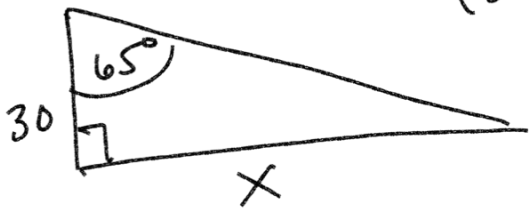
$\tan\theta = \frac{opp}{adj}$

$\tan\theta = \frac{5}{9}$

$\theta = \tan^{-1}\frac{5}{9}$

$\theta = \boxed{30^\circ}$

3.)



$30(\tan 65^\circ) = \left(\frac{X}{30}\right)30$ $X = 30\tan 65^\circ$

$= \boxed{64.3^\circ}$

4.)

$\sin 28 = \frac{8}{y}$

$y = \frac{8}{\sin 28}$

$\boxed{y = 17.0}$

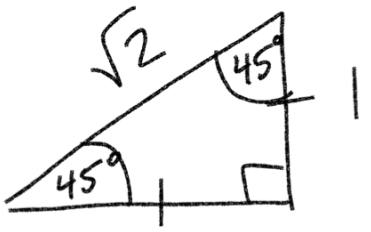
$\cos^{-1}(\quad) = \theta$ to get an angle

$\boxed{\cos^{-1}} \neq \sec\theta$ ↑ θ

$\cos\theta = \frac{adj}{hyp}$ $\sec\theta = \frac{hyp}{adj}$

special Triangles

45-45-90 Right Triangle



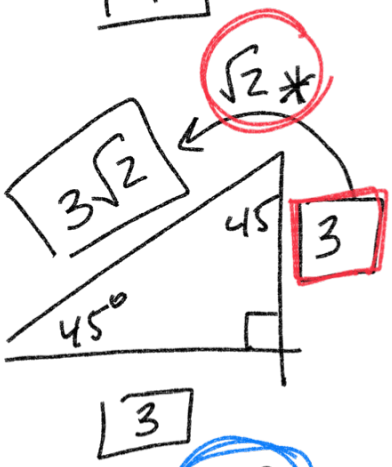
Pythagorean Theorem

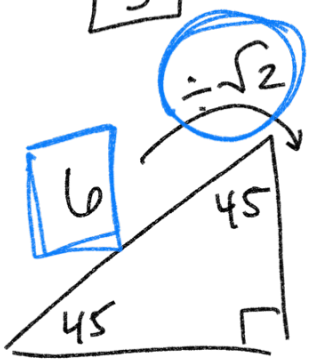
$$a^2 + b^2 = c^2$$

$$(1)^2 + (1)^2 = c^2 \qquad c = \sqrt{2}$$

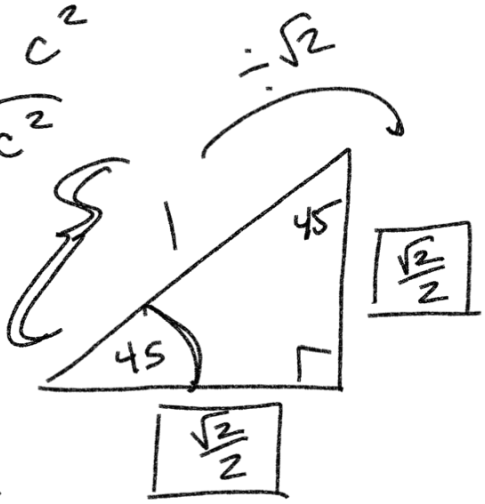
$$1 + 1 = c^2$$

$$\sqrt{2} = \sqrt{c^2}$$





$$\frac{6}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{6\sqrt{2}}{2} = 3\sqrt{2}$$



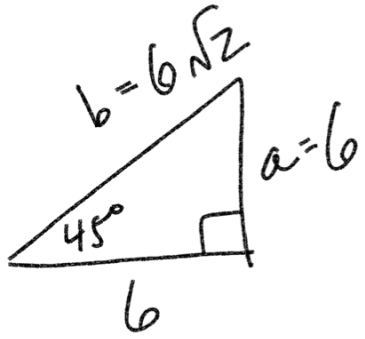
$$\frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

$$\sin 45^\circ = \frac{\frac{\sqrt{2}}{2}}{1}$$

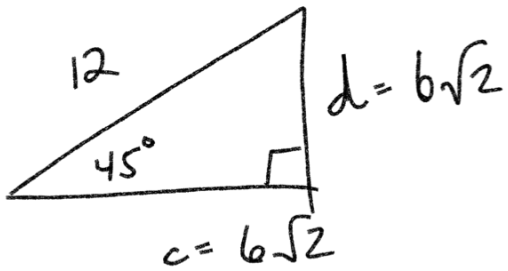
$$\sin 45^\circ = \frac{\sqrt{2}}{2}$$

$$\cos 45^\circ = \frac{\sqrt{2}}{2}$$

1.)

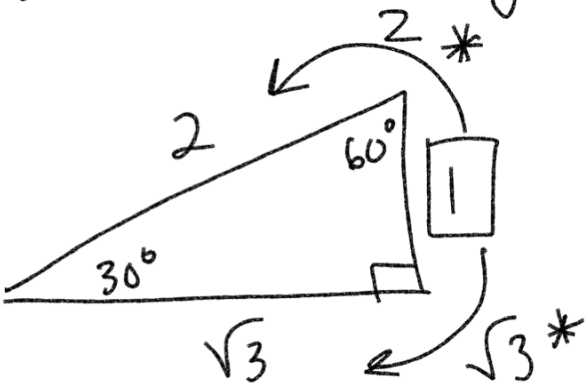


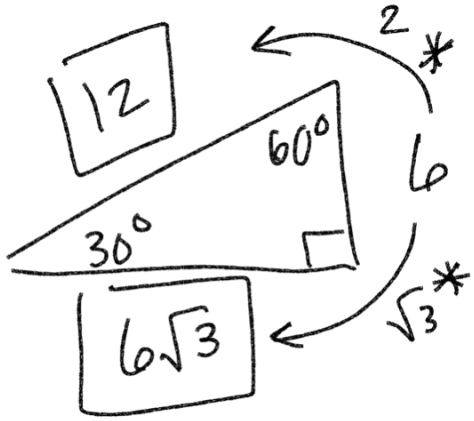
2.)



$$\frac{12}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{12\sqrt{2}}{2} = 6\sqrt{2}$$

30-60-90 Right Triangle





Pythagorean Theorem

$$a^2 + b^2 = c^2$$

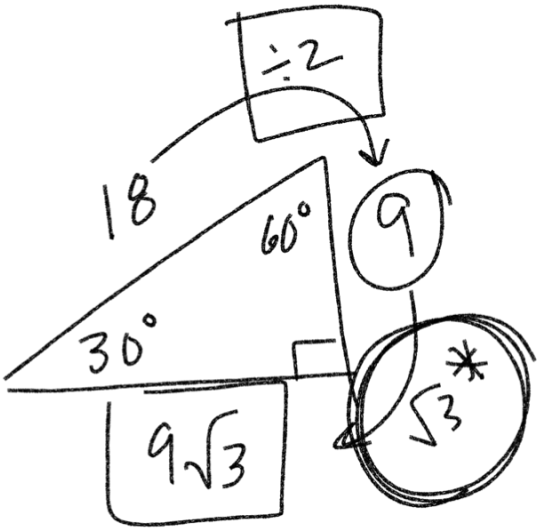
$$(1)^2 + b^2 = (2)^2$$

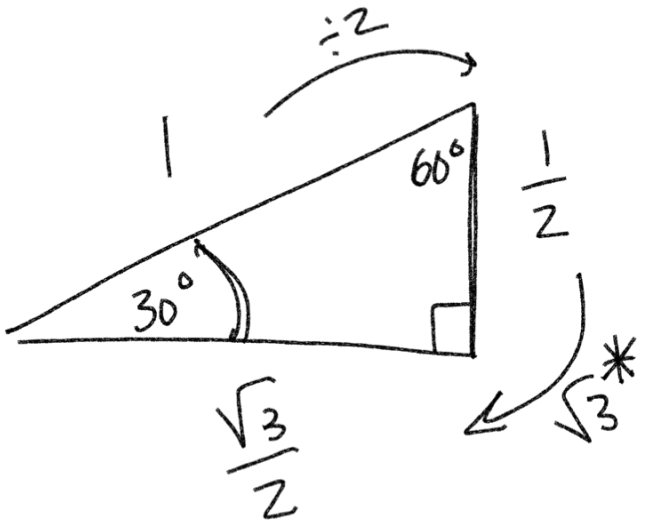
$$1 + b^2 = 4$$

$$-1 \qquad -1$$

$$\sqrt{b^2} = \sqrt{3}$$

$$b = \sqrt{3}$$





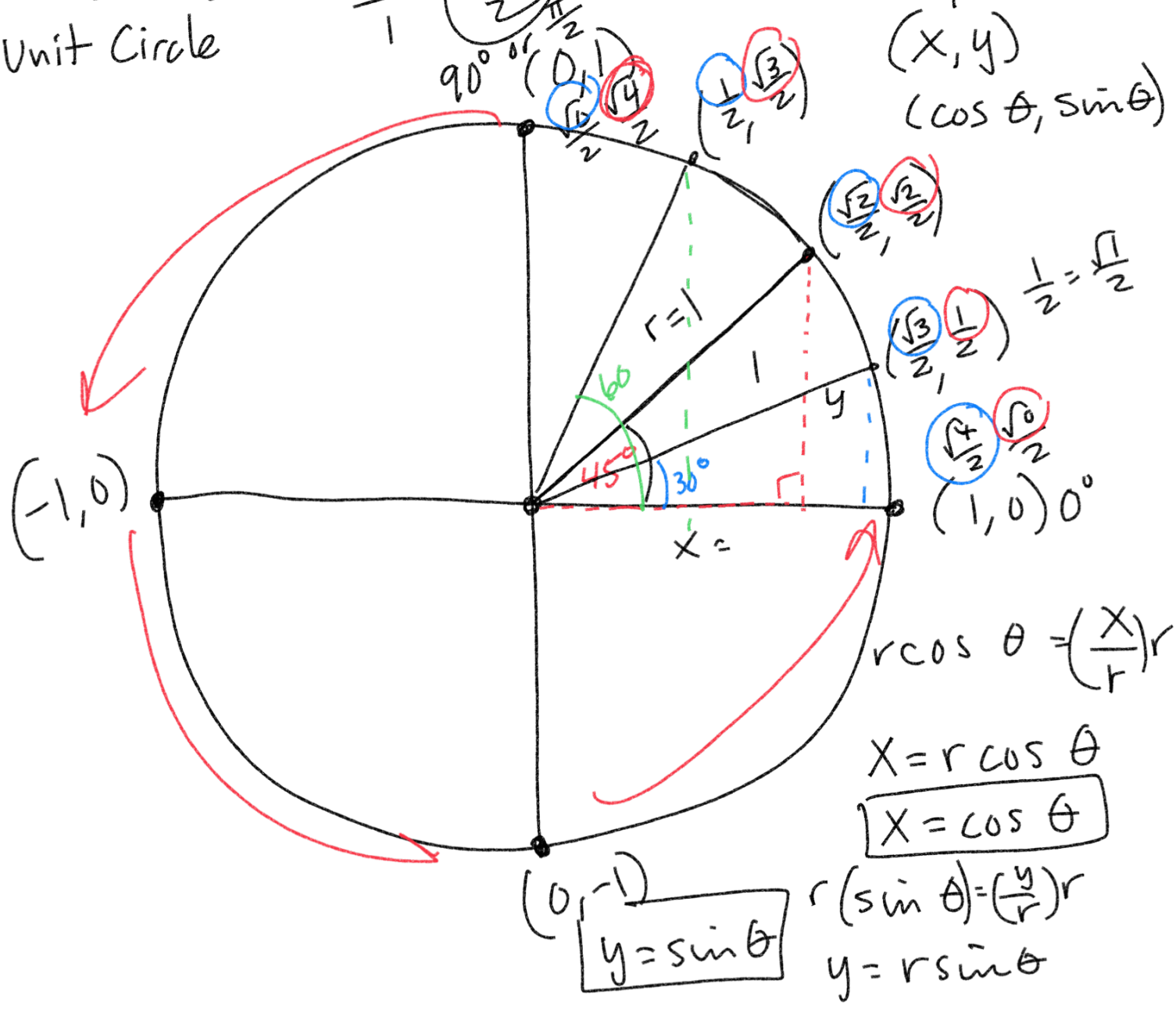
$\frac{1}{2} * \sqrt{3} = \frac{\sqrt{3}}{2}$

SOH CAH TOA

$\sin 30° = \frac{\frac{1}{2}}{1} = \frac{1}{2}$

$\cos 30° = \frac{\frac{\sqrt{3}}{2}}{1} = \frac{\sqrt{3}}{2}$

Unit Circle



(x, y)

(cos θ, sin θ)

$r\cos\theta = \left(\frac{x}{r}\right)r$

$x = r\cos\theta$

$\boxed{x = \cos\theta}$

$r(\sin\theta) = \left(\frac{y}{r}\right)r$

$y = r\sin\theta$

$\boxed{y = \sin\theta}$