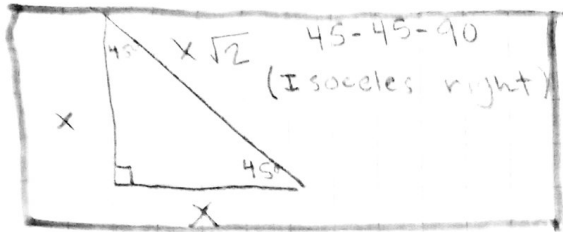


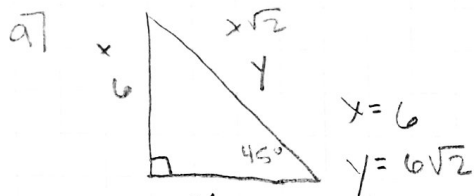
The Unit Circle

Special right triangles



Side length (x)	Side length	Hypotenuse
1	1	$\sqrt{2}$
2	2	$2\sqrt{2}$
3	3	$3\sqrt{2}$
4	4	$4\sqrt{2}$

ex: find the missing sides.

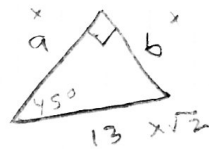


$$6^2 + 6^2 = y^2$$

$$6^2 + 6^2 = \sqrt{72}$$

$$\begin{array}{r} 2 \quad 36 \\ \quad 11 \\ \quad 6 \quad 6 \\ \quad \quad 11 \\ \hline 28 \quad 30 \end{array}$$

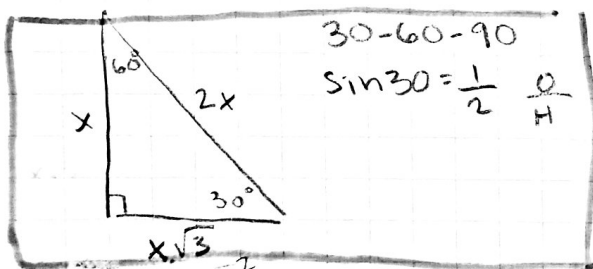
b)



$$x\sqrt{2} = 13$$

$$\frac{13}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$$

$$x = \frac{13\sqrt{2}}{2}$$



$$1^2 + b^2 = 2^2$$

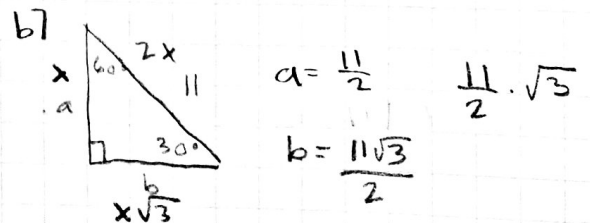
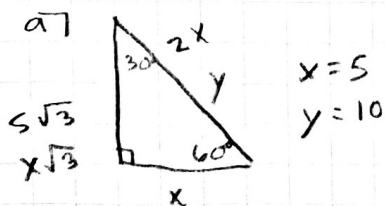
$$1 + b^2 = 4$$

$$b^2 = 3$$

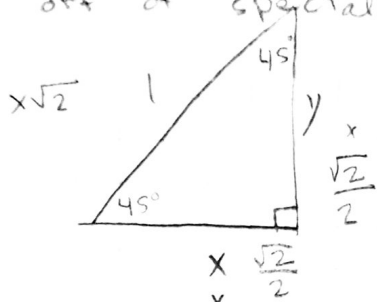
(x)

Side opp. 30°	Side opp. 60°	Hyp.
1	$\sqrt{3}$	2
2	$2\sqrt{3}$	4
3	$3\sqrt{3}$	6
4	$4\sqrt{3}$	8

ex:



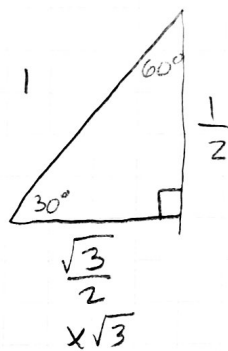
The Unit Circle - Circle with radius of 1 with coordinates based off of special right triangles.



45-45-90

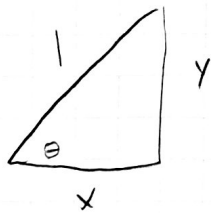
$$\frac{x\sqrt{2}}{\sqrt{2}} = \frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$$

$$x = \frac{\sqrt{2}}{2}$$



30-60-90

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



$$\sin \theta = \frac{y}{1}$$

$$y = \sin \theta$$

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

$$x = \cos \theta$$

$$\tan \theta = \frac{y}{x}$$

$$\frac{y}{x} = \tan \theta$$

Unit circle paper

ex: $\sin 35 = \frac{\sqrt{2}}{2}$

$\cos 30 = \frac{1}{2}$

$\tan 30 = \frac{\frac{1}{2}}{\frac{\sqrt{3}}{2}} = \frac{1}{\sqrt{3}}$

Fill in The Unit Circle

Positive:
Negative:

Positive:
Negative:

