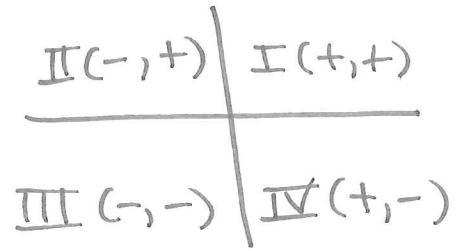Name: _____
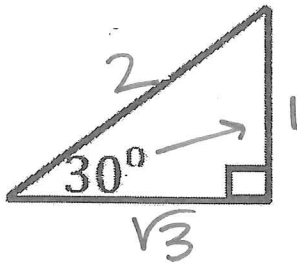
## Trig Functions of General Angles Notes (Degrees)

## To find the EXACT trigonometric values Notes
1.) Sketch the angle
2.) Label the reference angle
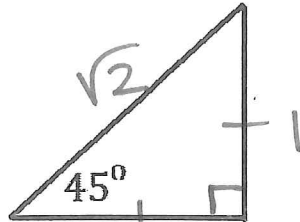3.) Draw a triangle to the x-axis and label sides
4.) Find the trig values

$$\text{II}(-,+) \mid \text{I}(+,+)$$
$$\text{III}(-,-) \mid \text{IV}(+,-)$$

$$30°-60°-90° \triangle \Rightarrow 1 : \sqrt{3} : 2$$
$$45°-45°-90° \triangle \Rightarrow 1 : 1 : \sqrt{2}$$



$$\theta' = 30°$$

$$\theta' = 45°$$
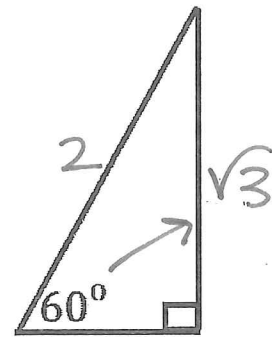
$$\theta' = 60°$$

1. Find the exact value of sin 60°. $\Rightarrow$ Q I

$$\theta' = 60°$$

2. Find the exact value of cos 300°. $\Rightarrow$ Q IV

$$\theta' = 60°$$



$$\sin\theta = \frac{opp}{hyp}$$

$$= \boxed{\frac{\sqrt{3}}{2}}$$

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

$$= \boxed{\frac{1}{2}}$$
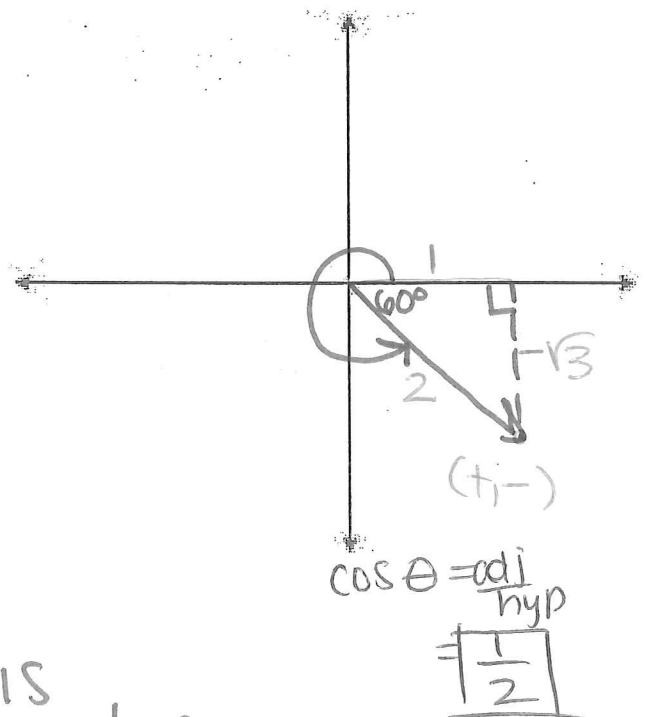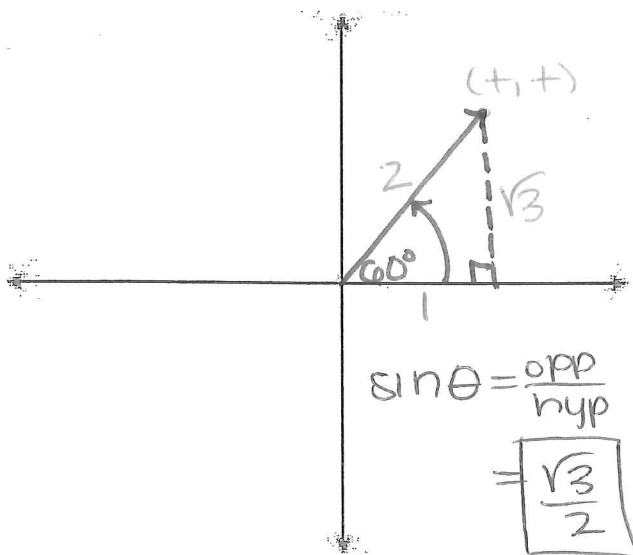
★ Hypotenuse is
ALWAYS positive ★

3. Find the exact value of sin 120°. $\Rightarrow$ QII
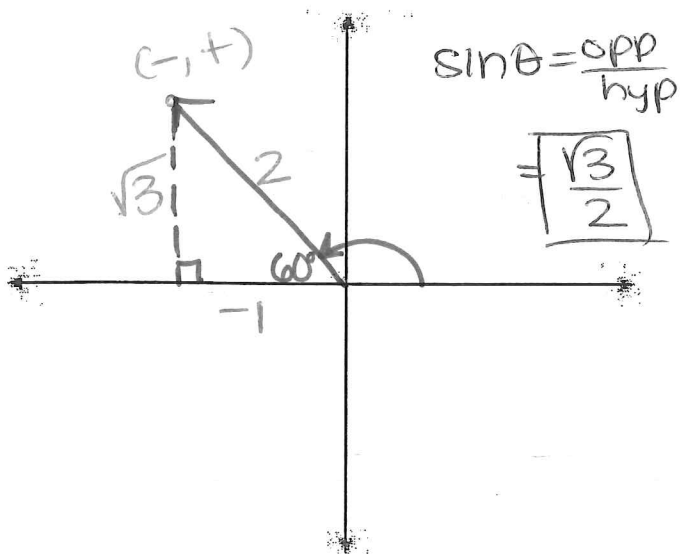
$\theta' = 60°$

$(-,+)$

$\sqrt{3}$   2   $60°$   $-1$

$\sin\theta = \dfrac{opp}{hyp}$

$= \boxed{\dfrac{\sqrt{3}}{2}}$

4. Find the exact value of tan 45°.

QI

$\theta' = 45°$

$(+,+)$

$\sqrt{2}$   1   $45°$

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

$= \dfrac{1}{1}$

$= \boxed{1}$

5. Find the exact value of cos 30°. $\Rightarrow$ QI

$\theta' = 30°$

$(+,+)$

2   1   $30°$   $\sqrt{3}$

$\cos 30° = \dfrac{adj}{hyp}$

$= \boxed{\dfrac{\sqrt{3}}{2}}$

6. Find the exact value of tan 300°. $\Rightarrow$ QIV

$\theta' = 60°$

1   $60°$   2   $-\sqrt{3}$

$(+,-)$

$\tan\theta = \dfrac{opp}{adj} = \dfrac{-\sqrt{3}}{1}$

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

Algebra 2                           Name_____ ID: 1
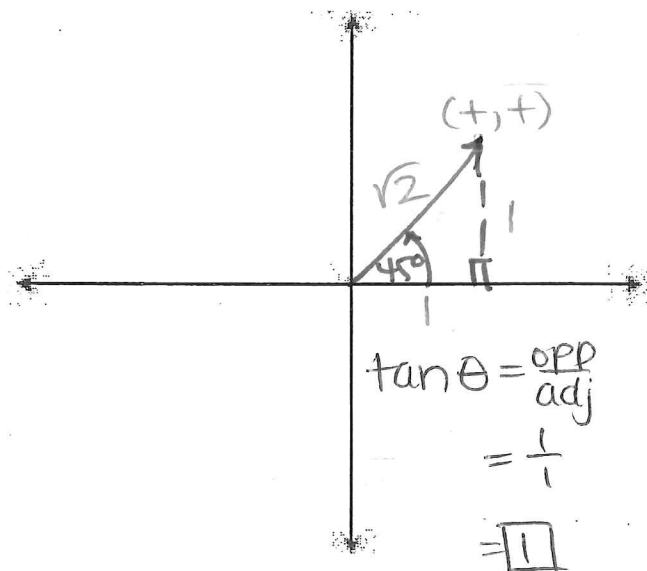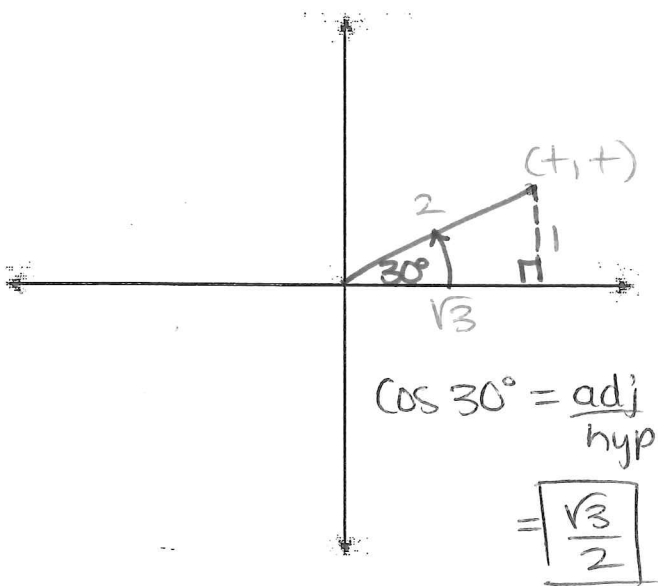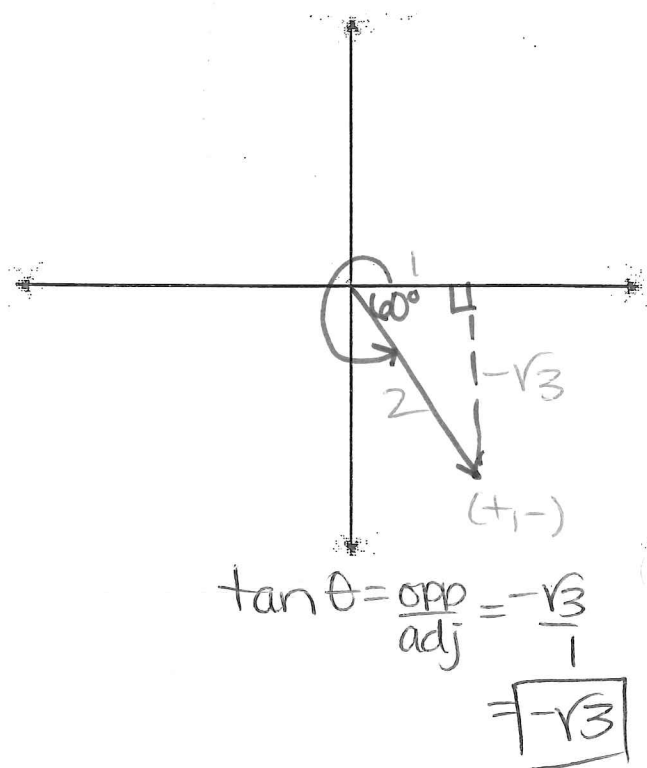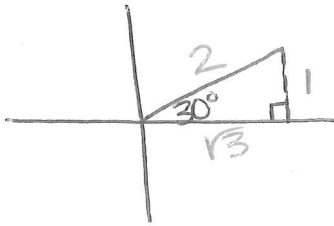
Notes - Exact Values (Day 2 - Degrees)         Date_____ Period____

**Find the exact value of each trigonometric function.**  SOHCAHTOA

1)  sec 30°    $\theta' = 30°$  QI                    2)  cos 300°
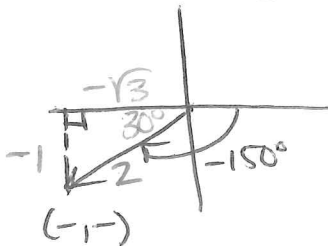
$$\sec\theta = \frac{hyp}{adj}$$

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

$$= \boxed{\frac{2\sqrt{3}}{3}}$$

3)  tan −870°                                          4)  tan −225°

$\theta' = 30°$  QIII

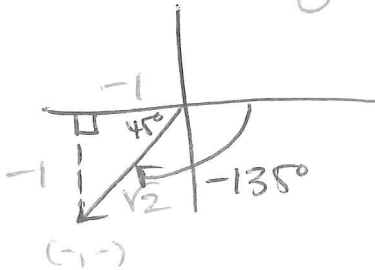$$\tan\theta = \frac{opp}{adj}$$

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

$$= \boxed{\frac{\sqrt{3}}{3}}$$

$(-,-)$   −150°

5)  csc −135°                                          6)  sin 240°

$\theta' = 45°$  QIII

$$\csc\theta = \frac{hyp}{opp}$$

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

$$= \boxed{-\sqrt{2}}$$

$(-,-)$   −135°

1) $\dfrac{2\sqrt{3}}{3}$

2) $\dfrac{1}{2}$

3) $\dfrac{\sqrt{3}}{3}$

4) $-1$

5) $-\sqrt{2}$

6) $-\dfrac{\sqrt{3}}{2}$