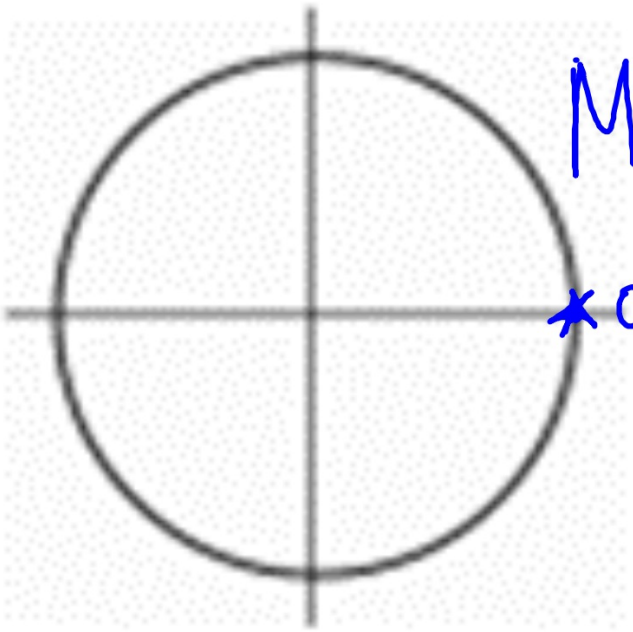
Warm Up

Without using any notes, fill in AS MUCH AS YOU CAN!

SWAP MEET!



Index Card

UNIT CIRCLE TRIG

① $\cos\theta = x$ ⟷ ④ $\sec\theta = \frac{1}{x}$ "Secant"

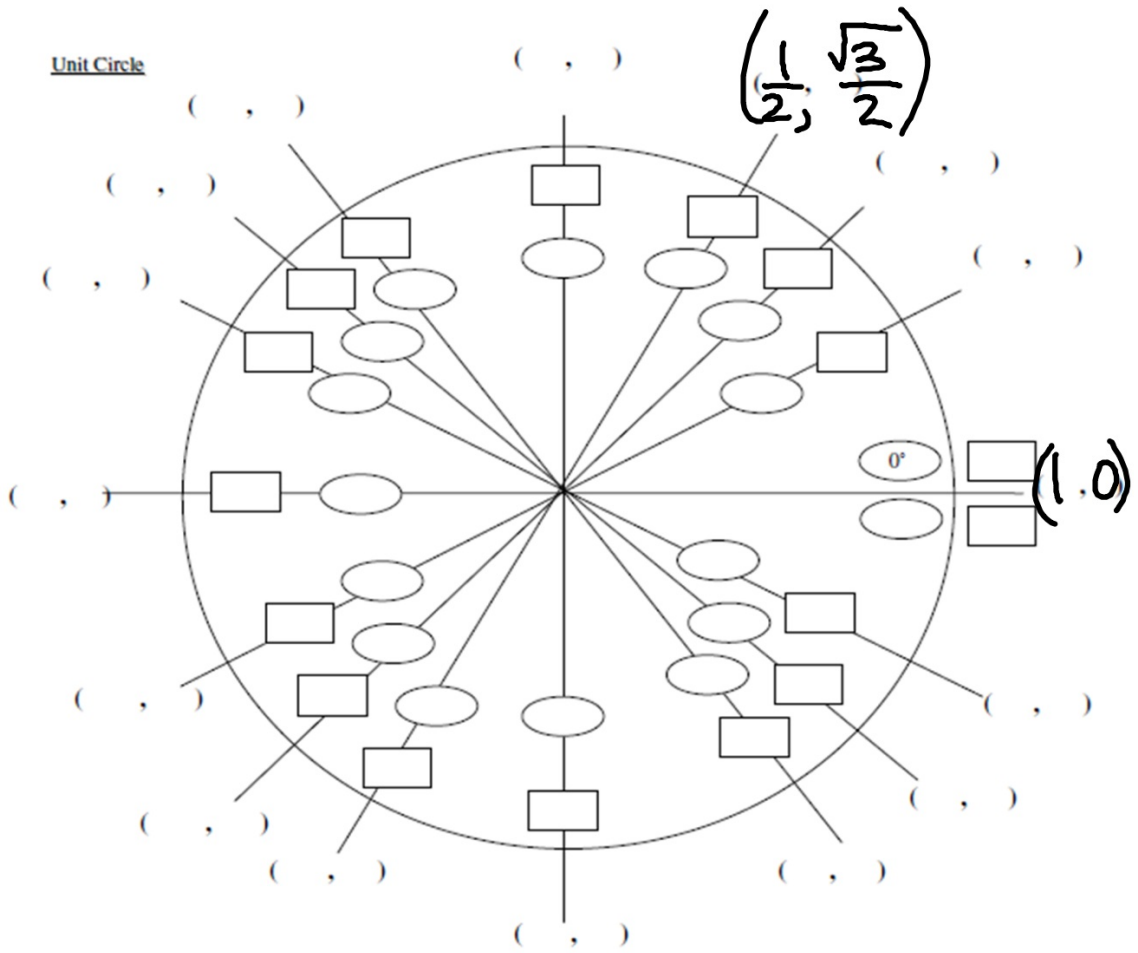
② $\sin\theta = y$ ⟷ ⑤ $\csc\theta = \frac{1}{y}$ "cosecant"

③ $\tan\theta = \frac{y}{x}$ ⟷ ⑥ $\cot\theta = \frac{x}{y}$ "cotangent"

Objective 5.3

I can... build the Unit Circle... and use it to find solutions **without** a calculator!

Unit Circle



Key

(,)

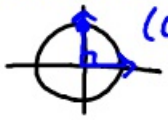
$Cos\theta, Sin\theta$

Degrees

Radians

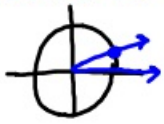
5.3 Using the Unit Circle Examples!

1. What is the cos(90)?



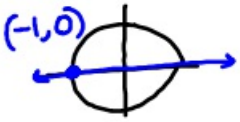
$x \rightarrow \boxed{0}$

2. What is the sin(30)?



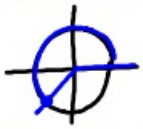
$\left(\frac{\sqrt{3}}{2}, \frac{1}{2}\right)$ $y \rightarrow \boxed{\frac{1}{2}}$

3. What is the sin(180)?



$y = \boxed{0}$

4. What is the cos(225)?

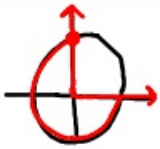


$\left(-\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}\right)$ $x = \boxed{\frac{-\sqrt{2}}{2}}$ "Exact values"

5. What is the tan(315)?

$\left(+\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}\right)$ $\frac{y}{x} = \frac{-\frac{\sqrt{2}}{2}}{+\frac{\sqrt{2}}{2}} = \boxed{-1}$

6. What is cot(-270)?



$\frac{x}{y} = \frac{0}{1} = \boxed{0}$

7. What is csc(-45)?

$\left(\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}\right)$

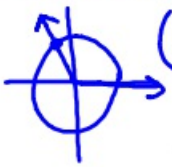
$\frac{1}{y} = \frac{1}{-\frac{\sqrt{2}}{2}} =$ "Rationalizing"

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

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

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

8. What is sec(120)?



$\left(-\frac{1}{2}, \frac{\sqrt{3}}{2}\right)$

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

$= \frac{1}{1} \cdot \frac{-2}{1} = \boxed{-2}$

P-I-G

- No calculators!
- Use Unit Circles ONLY!
- Use your knowledge & apply it!
- Work together
- Help each other understand

Exit Journal Q's

1. cos(180)

2. sec(90)

3. cot(225)

4. tan(30)

Write a letter to a teacher

- Tell them about the Unit circle.
- Explain how to use the Unit circle to find the true values of a functions.
- Remember, you are literally doing the work of a calculator. Be proud of that.

MIDTERM THURSDAY