

1 4 ✓
2 2

DRILL
+ +

ADDS

MULT

① Factor

$$\underline{x^2} + \underline{5x} + \underline{4} = (x+1)(x+4)$$

② solve

$$\log_4 x = 3$$

↑
base

↑
exponent

$$4^3 = x$$

$$x = 64$$

③ Solve

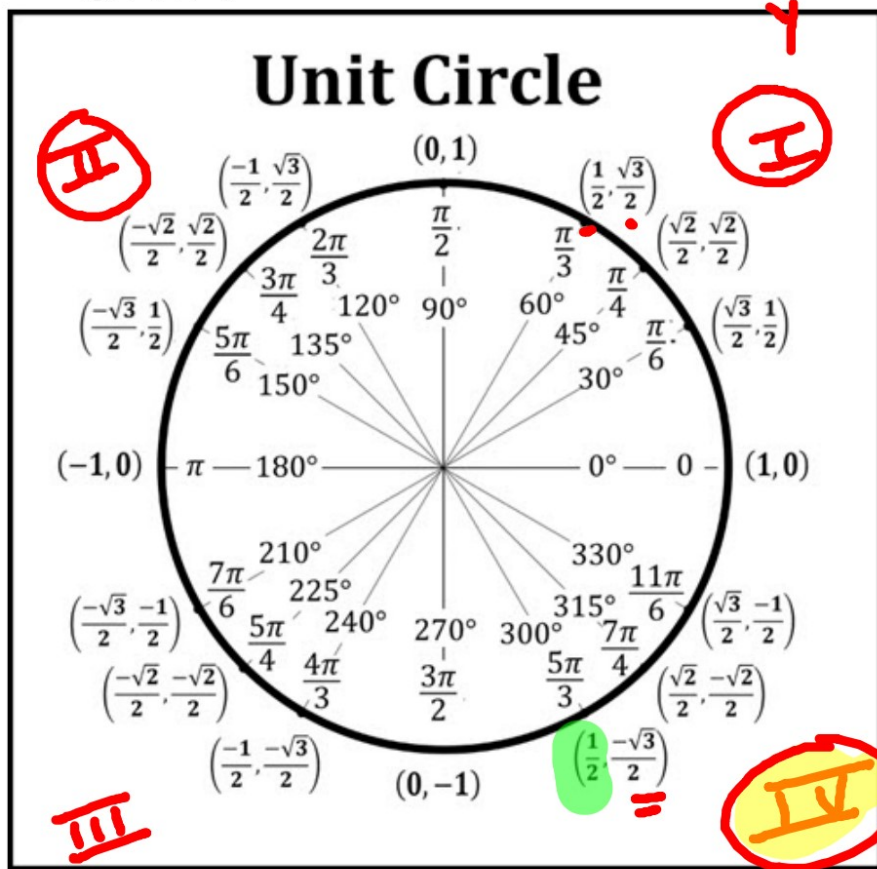
$$x^2 + 6x + 8 = 3x + 18$$

$$x = -5$$

$$x = 2$$

Graphed on
Desmos &
found intersection

⑥ Quadrant **IV** $\cos \theta = \frac{1}{2}$, then
 what is the $\sin \theta$?



$$\sin \theta = -\frac{\sqrt{3}}{2}$$

①

$$f(x) = \frac{2}{x-3}$$

* VA @ $x - 3 = 0$
 $\quad \quad \quad +3 \quad +3$

VA @ $x = 3$

* y-intercept
($x = 0$)

$$\frac{2}{0-3} = \boxed{\frac{2}{-3}}$$

* $(0, -\frac{2}{3})$

* Rational Function

* Fraction with a variable in the denominator

NOT CONTINUOUS

⑧

Solve:

$$\sqrt{3x+2} = 5^2$$

$$3x+2 = 25$$
$$-2 \quad -2$$

$$\frac{3x}{3} = \frac{23}{3}$$

$$* \quad x = \frac{23}{3}$$

11

Solve

$$3^x + \cancel{8} = 120$$

$$ - \cancel{8} - 8$$

Solve for
exponent
use logs.

base $\rightarrow 3^x = 112$

$\log_3 112 = x$

$x = \frac{\log 112}{\log 3}$
↑ exponent

Change of
base formula



$$\log_a b = \frac{\log b}{\log a}$$

⑫ Find inverse of $f(x) = \frac{x}{3} + 5$

• Change $f(x)$ to y $y = \frac{x}{3} + 5$

• Switch x & y $x = \frac{y}{3} + 5$

• Solve for "y"
(Get by itself)

$$3(x - 5) = \frac{y}{3} \cdot 3$$

$$3x - 15 = y$$

DRILL

- Change $f(x) \rightarrow y$
- Switch x & y
- Solve for y

① Find inverse of $f(x) = 4x - 6$

$$y = 4x - 6$$

$$x = 4y - 6$$

$$\begin{array}{r} x = 4y - 6 \\ +6 \quad +6 \\ \hline x + 6 = 4y \end{array}$$

$$\frac{4y}{4} = \frac{x+6}{4}$$

② Solve for x :

$$4^3 = \boxed{x = 64}$$

$$\log_{\text{base } 4} X = \text{exponent } 3$$

base

exponent

③ Solve for x :

$$\sqrt{2x - 14} = 4^2$$

$$2x - 14 = 16$$

$$+14 \quad +14$$

$$\frac{2x}{2} = \frac{30}{2}$$

$$\boxed{x = 15}$$

***FACTOR**

④ Simplify:

$$\frac{x^2 + 5x + 4}{x + 4} = \frac{(x+1)(x+4)}{x+4}$$

ADD ← ← MULT

1 4
2 2

$$\boxed{x+1}$$

***DESMOS**

⑤ Solve

$$x^2 + 6x + 4 = 3x + 4$$
$$x^2 + 3x - 10 = 0$$

$$(x+5)(x-2) = 0$$

$$x+5 = 0$$

$$-5 \quad -5$$

$$\boxed{x = -5}$$

$$x-2 = 0$$

$$+2 \quad +2$$

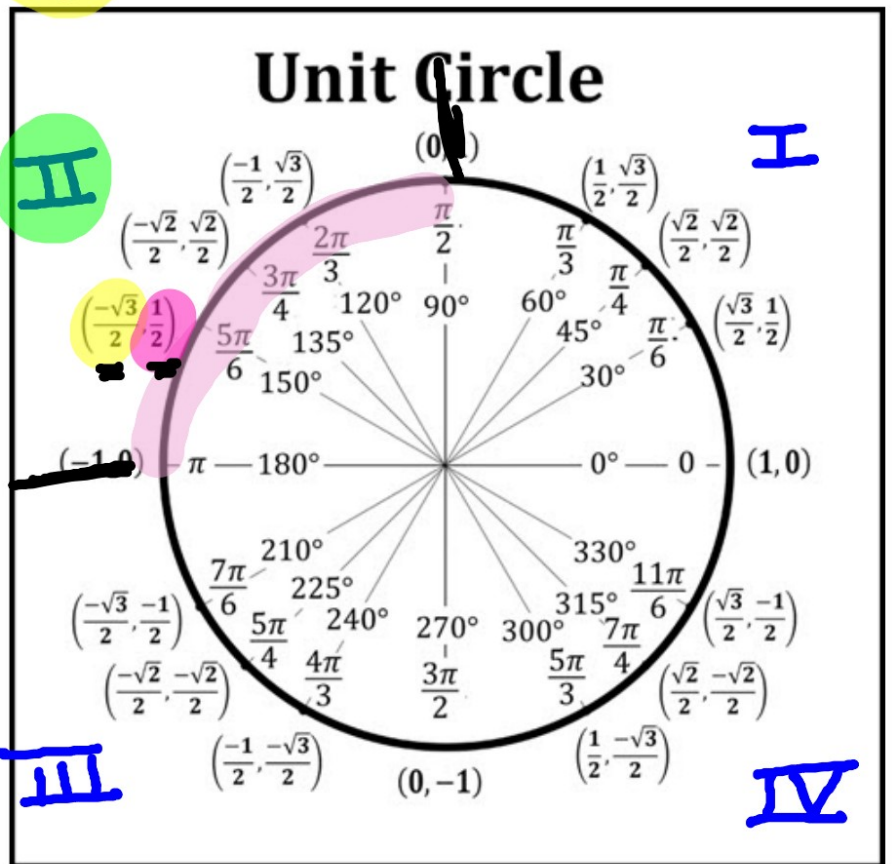
$$\boxed{x = 2}$$

⑥ An angle is in Quadrant II and the $\cos \theta = -\frac{\sqrt{3}}{2}$, find the $\sin \theta$.

$\cos \theta = X$

$\sin \theta = Y$

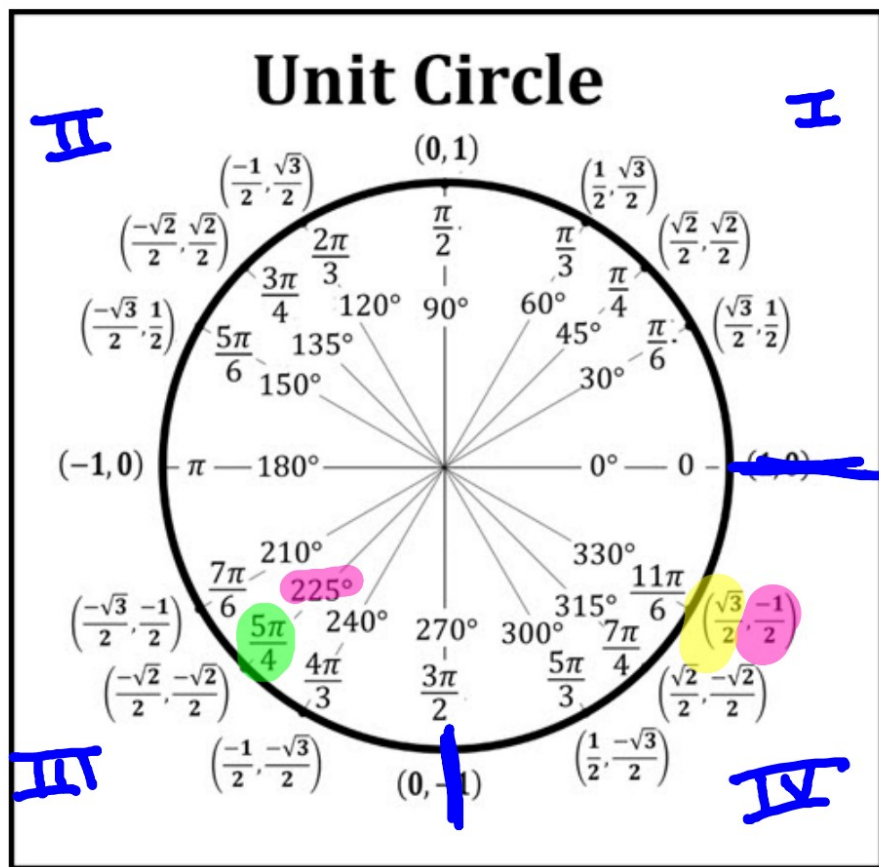
$\sin \theta = \frac{1}{2}$



⑦ If we are in Quadrant IV and the $\sin \theta = -\frac{1}{2}$, what is the $\cos \theta$?

$$\begin{cases} \sin \theta = y \\ \cos \theta = x \end{cases}$$

$$\cos \theta = \frac{\sqrt{3}}{2}$$



⑧

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

* DESMOS
(3, 4)

* Find the vertex



⑨

Convert 225° to Radians.

* Unit Circle *

$$\begin{aligned} &\rightarrow \frac{225\pi}{180} = \frac{5\pi}{4} \end{aligned}$$