

ACE
CALC 1 TIPS
RULES

Chain Rule

$$\frac{d}{dx}[f(g(x))] = f'(g(x))g'(x)$$

Constant Multiple Rule

$$\frac{d}{dx}[cf(x)] = cf'(x)$$

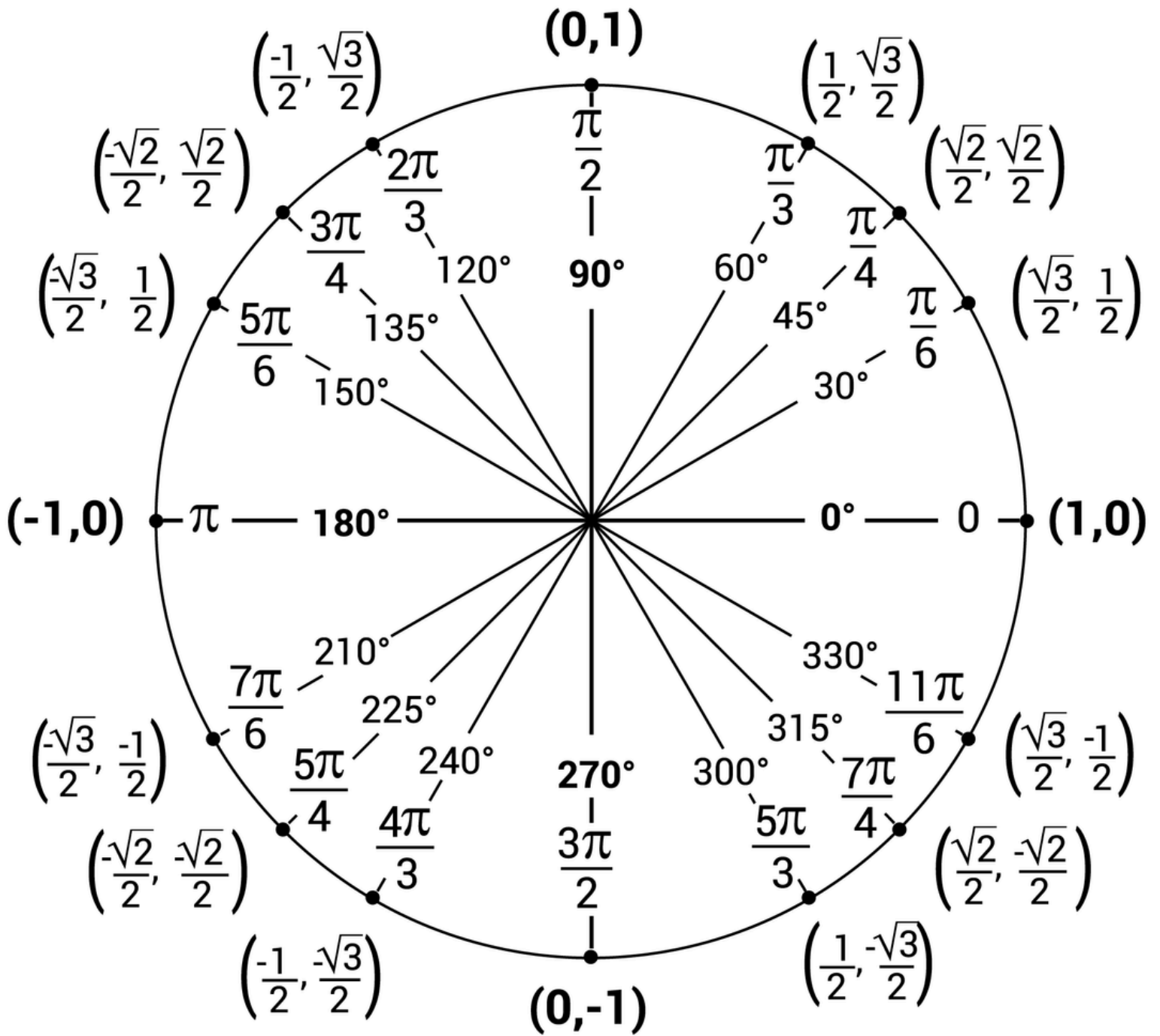
The Product Rule

$$\frac{d}{dx}[f(x)g(x)] = f(x)g'(x) + g(x)f'(x)$$

Power Rule

$$\frac{d}{dx}(x^n) = nx^{n-1}$$

$$\frac{d}{dx}(x) = 1$$



ACE CALC 1 TIPS

DERIVATIVES

TERMINOLOGY

Expressions for derivative of x

- x'
- $\frac{d}{dx}(x)$

What is a derivative?

The rate of change for some function. Like in a line- the derivative is the slope - like rise over run!

DERIVATIVES TO REMEMBER

$$\ln(x)' = \frac{1}{x}$$

$$x' = 1$$

$$c' = 0$$

$$\cos(x) = -\sin(x)$$

$$\sin(x) = \cos(x)$$

<- ** where c is some constant**

APPLICATION

$$y = \ln(x)$$

Find the derivative of the function

** $y = \ln(x)$ can also be written as $f(x) = \ln(x)$ because $f(x)$ simply means function of x , which is what y represents**



Our function = $\ln(x)$

Then, using our rule that $\ln(x)' = \frac{1}{x}$

we can say that our solution to the derivative of the function is

$$\frac{1}{x}$$