



Find the following without the use of a calculator.

$$\tan\left(\frac{\pi}{4}\right) =$$

$$\csc\left(-\frac{\pi}{2}\right) =$$

$$\sec\left(\frac{5\pi}{4}\right) =$$

$$\sin\left(-\frac{4\pi}{3}\right) =$$

$$\sin^{-1}\left(-\frac{\sqrt{2}}{2}\right) =$$

$$\tan^{-1}(-\sqrt{3}) =$$

Given the interval  $0 \leq \theta \leq 2\pi$

When is  $\sin(\theta) < 0$ ?

When is  $\cos(\theta) > 0$ ?

When is  $\tan(\theta) < 0$ ?

Solve the following using factoring:

1)  $3x^2 - 27 = 0$

2)  $30x^2 - 10x + 70 = -135x$

3)  $2x^2 + 4x = 2x + 12$

Given the following information for a linear equation write an equation in point slope form.

4) slope = -3/2  
point (4, -5)

5) point (-3, 2)  
point (4, 8)

Solve the following equations for the indicated variable:

$$6) \frac{18}{6x} = \frac{x^3}{9}$$

$$7) 3 = 5e^{2x} - 9$$

$$8) -9 = -4(2)^{x+3}$$

$$9) \sqrt{2x+3} - 4 = x - 6$$

$$10) 2 \cos \theta + 1 = 2$$

$$11) 2|x+2| - 5 < 13$$

Find the following difference quotients.

As a reminder, the difference quotient is  $\frac{f(x+h)-f(x)}{h}$

$$12) f(x) = 3x + 2$$

$$13) f(x) = 2x^2 + 3x$$

Given the following rational functions: Identify the vertical asymptotes, horizontal asymptotes, holes, x and y-intercept(s).

$$14) f(x) = \frac{3x^3 - 13x^2 - 10x}{30x^2 + 125x + 70}$$

Given the following table find the following, show all steps:

x	f(x)	g(x)	h(x)
1	5	7	-12
2	12	6	-8
3	9	2	3
4	3	5	4

$$15) 3g(f(4)) =$$

$$16) (g(3))^2 - 7h(2) =$$

$$17) 3f(1) - g^{-1}(5) =$$

$$18) g(f(h(4))) =$$