Chapter 1 Review

White Board Action!

Linear Equation

- Write the equation, of the linear function f such that it has the indicated function values

$$f(2) = -6$$

$$f(-1) = 3$$

Distance and Midpoint

- Find the distance between these two points, and then find the midpoint

$$f(2) = -6$$

$$f(-1) = 3$$

Greatest Integer Function

- For the function $f(x) = [\![-0.3x + 5]\!] - 1.2$ find $f(3)$

Piecewise Function

- Graph the piecewise function (use some exact points):

$$f(x)=\begin{cases}5x-3 & x\le -1\\ x^2-2 & x>-1\end{cases}$$

Symmetry and Even/Odd

- Is the following function even, odd or neither?
- What type of symmetry does it have?

$$f(x) = \frac{x^2}{x^4 + 3}$$

Inverses

- Find the inverse function of

$$f(x) = \frac{3x-2}{x+4}$$

- Find the domain of f(x)

- Find the domain of $f^{-1}(x)$

Transformations- sketching

- Sketch a graph of the function:

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

Transformations- describing

- For the equation,
  - Identify the parent (mother) function
  - Describe ALL transformations- be specific

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

Intercepts

- For the equation,
  - Find the x-intercept(s)
  - Find the y-intercept

$$f(x) = (x+1)^2 - 9$$

Equation of a Circle

- Find the equation of the circle with endpoints of a diameter that are

$$(4,-2) \quad \textit{and} \quad (3,6)$$

Translating into an expression

- Write an expression or equation:

X is 5 more than two-thirds of the sum of y and z

Composition of Functions

Use the functions:

$$f(x) = x^2 + 3 \qquad g(x) = 2x - 1$$

find

$f + g$

Composition of Functions

Use the functions:

$f(x) = x^2 + 3 \qquad g(x) = 2x - 1$

find

$\frac{f}{g}$

and name any restrictions

Composition of Functions

Use the functions:

$$f(x) = x^2 + 3 \qquad g(x) = 2x - 1$$

find

$$(f \circ g)(x)$$

Composition of Functions

- Find two functions, f(x) and g(x) such that f(g(x)) = h(x)

$$h(x) = \sqrt[3]{x+2}$$

Difference Quotient

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

  find $\dfrac{f(x+h) - f(x)}{h}$

Average Rate of Change

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

  find the average rate of change from x = 0 to x = 2

Symmetry and Even/Odd

- Is the following function even, odd or neither?
- What type of symmetry does it have?

$$xy = 10$$

Transformations- sketching

- Sketch a graph of the function:

$$f(x) = \frac{1}{x+5}$$

Transformations- describing

- For the equation,
  - Identify the parent (mother) function
  - Describe ALL transformations- be specific

$$f(x) = \frac{5}{2x} + 9$$

Transformations- describing

- For the equation,
  - Identify the parent (mother) function
  - Describe ALL transformations- be specific

$$f(x) = -2|x+4|+6$$

Composition of Functions

Use the functions:

$$f(x) = x^2 + 3 \qquad g(x) = 2x - 1$$

find

$$g - f$$

Composition of Functions

Use the functions:

$$f(x) = x^2 + 3 \quad g(x) = 2x - 1$$

find

$$f \bullet g$$

Composition of Functions

Use the functions:

$$f(x) = x^2 + 3 \qquad g(x) = 2x - 1$$

find

$$(g \circ f)(x)$$

Composition of Functions

Use the functions:

$$f(x) = x^2 + 3 \qquad g(x) = 2x - 1$$

find

$$(f \circ f)(3)$$

Composition of Functions

- Find two functions, f(x) and g(x) such that f(g(x)) = h(x)

$$h(x) = (6x - 5)^3$$