Before we begin, are there any questions from yesterday's assigned practice?

READ pp. 17-23
pp. 24-25 # 3, 4, 6, 7

Homework Check...coming soon.
Keep up with the work or come for help.

RETURN and correct: ***Summative 0***

RETURN and correct: ***CheckPoint 1.1***

6. State the degree of each function and whether it is linear or quadratic.

a) $f(x) = -4x(x - 1) - x$ **c)** $g(x) = 3x^2 + 35$

b) $m(x) = -x^2 + (x + 3)^2$ **d)** $g(x) = 3(x - 5)$

$= \underline{-x^2 + x^2} + 6x + 9$

$= 6x + 9$

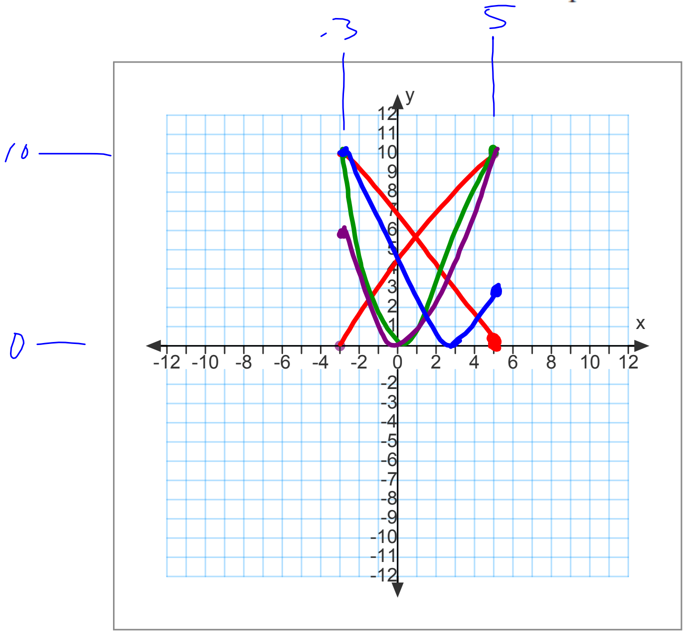
$\therefore$ degree $= 1$

$\therefore$ linear

7. A function has the following domain and range:
T

$$\text{Domain} = \{t \in \mathbf{R} \mid -3 \leq t \leq 5\}$$
$$\text{Range} = \{g(t) \in \mathbf{R} \mid 0 \leq g(t) \leq 10\}$$

a) Draw a sketch of this function if it is linear.
b) Draw a sketch of this function if it is quadratic.



Today's Learning Goal(s):

By the end of the class, I will be able to:

a) interpret relationships expressed in function notation.

MCF 3MI

1.3 Function Notation

Date: ____________________
(**Every** lesson)

Function notation is written like $f(x)$ and represents the value of the dependent variable for a given value of the independent variable. (*think of it like y)*.

$f(x)$ is read as "f of x". The symbols $f(x)$, $g(x)$ *and* $h(x)$ are often used to name functions, but other letters may be used. It is sometimes helpful to use letters that match the quantities in the problem, for example use $v(x)$ to represent velocity.

Ex. 1: Given $f(x) = 2x^2 + 3x - 1$, evaluate:

a) $f(3) = 2(3)^2 + 3(3) - 1$

$= 2(9) + 9 - 1$

$= 18 + 9 - 1$

$= 26$

this represents the point $(3, 26)$

b) $f\left(\frac{1}{2}\right) = 2\left(\frac{1}{2}\right)^2 + 3\left(\frac{1}{2}\right) - 1$

$= \cancel{2}\left(\frac{1}{\cancel{4}_2}\right) + \frac{3}{2} - 1$

$= \frac{1}{2} + \frac{3}{2} - 1$

$= \frac{4}{2} - 1$

$= 2 - 1$

$= 1$

$\therefore \left(\frac{1}{2}, 1\right)$

c) $f(5) - f(4)$

$= 64 - 43$

$= 21$

$f(5) = 2(5)^2 + 3(5) - 1$

$= 2(25) + 15 - 1$

$= 50 + 14$

$= 64$

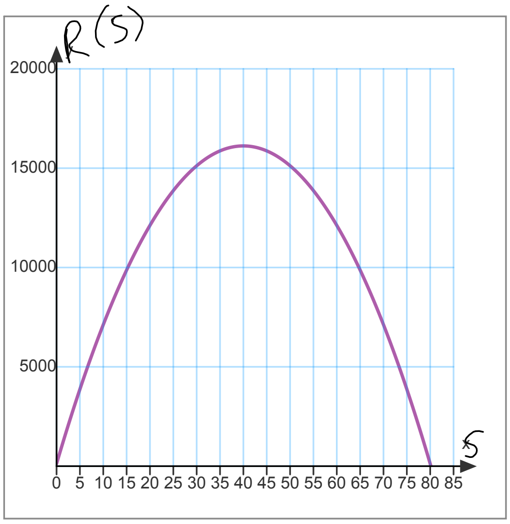
$f(4) = 2(4)^2 + 3(4) - 1$

$= 2(16) + 12 - 1$

$= 32 + 11$

$= 43$

Ex. 2: The relationship between the selling price s of a new brand of sunglasses and revenue, $R(s)$, is represented by the function $R(s) = -10s^2 + 800s + 120$ and it's graph below.



a) Determine the revenue when the selling price is \$5. $s=5$

$$R(5) = -10(5)^2 + 800(5) + 120$$
$$= -10(25) + 4000 + 120$$
$$= -250 + 4120$$
$$= 3870$$

b) What does $R(20) = 12120$ mean? Explain.

If the selling price is \$20, then the revenue is \$12120.

c) If $R(s) = 16120$, determine the selling price, s.

$$R(s) = -10s^2 + 800s + 120$$
$$16120 = -10s^2 + 800s + 120$$
$$0 = -10s^2 + 800s + 120 - 16120$$
$$= -10s^2 + 800s - 16000$$
$$= -10(s^2 - 80s + 1600)$$
$$0 = -10(s-40)(s-40)$$
$$s = 40$$

P: 1600 S: −80

1	1600
2	800
~~3~~	
4	400
5	
⋮	
40	40

∴ a Selling price of \$40 creates a Revenue of \$16 120

Ex. 3: If $g(x) = 2x^2 - 3x + 5$, determine:

a) $g(m)$

$$= 2(m)^2 - 3(m) + 5$$
$$= 2m^2 - 3m + 5$$

b) $g(3x)$

$$= 2(3x)^2 - 3(3x) + 5$$
$$= 2(9x^2) - 9x + 5$$
$$= 18x^2 - 9x + 5$$

$A \times B = 0$

$A = 0$ or $B = 0$

$(x-7)(x+2) = 0$

$x - 7 = 0$

$x = 7$

$x + 2 = 0$

$x = -2$

Today's Assigned Practice:

READ pp. 27-32, 36

then complete: pp. 32-34 # 2, 4, 6, 9, 10a(vi), 11a(vi), 12

p. 32

$x=3$

2. Evaluate $f(3)$ for each of the following.

a) $\{(1, 2), (2, 0), (3, 1), (4, 2)\}$

$(3, f(3))$

$\therefore f(3)=1$

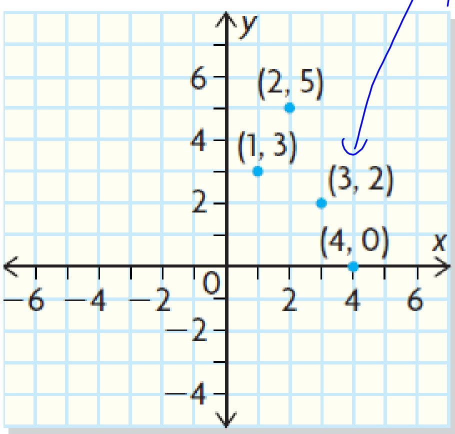
b)

x	1	2	3	4
y	2	3	4	5

$x=3 \quad y=4$

$f(3)=4$

c)



$x=3, y=2$

$f(3)=2$