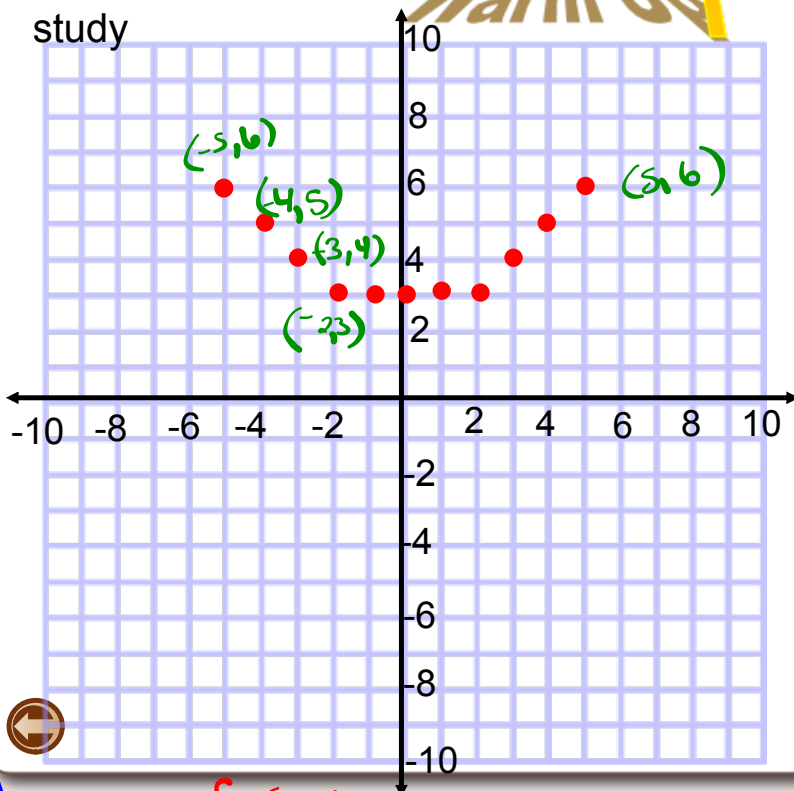
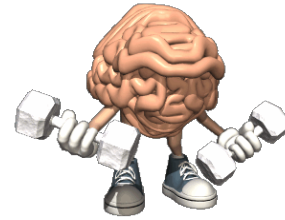


QUIZ Wednesday  
after the long  
weekend. So time to  
study

# Warm Up



## Domain & Range

$x$	$y$
-5	6
-4	5
-3	4
-2	3
-1	3
0	3
1	3
2	3
3	4
4	5
5	6

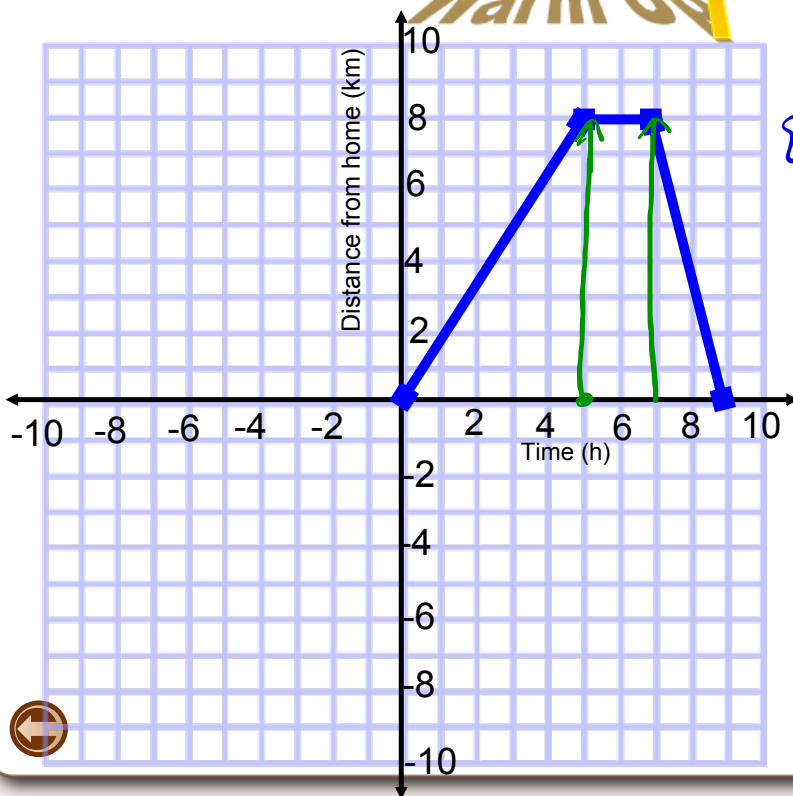
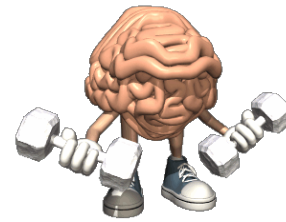
Domain  $\{-5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5\}$

Range  $\{3, 4, 5, 6\}$

$$\{x \mid -5 \leq x \leq 5, x \in \mathbb{I}\}$$

$$\{y \mid 3 \leq y \leq 6, y \in \mathbb{I}\}$$

# Warm Up



Domain & Range

$$\{x \mid 0 \leq x \leq 9, x \in \mathbb{R}\}$$

$$\{y \mid 0 \leq y \leq 8, y \in \mathbb{R}\}$$

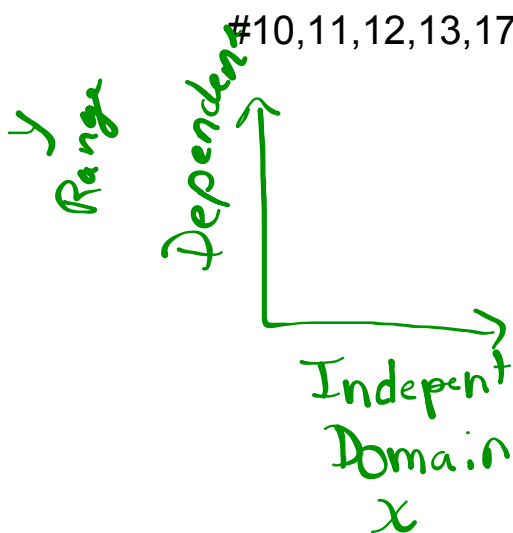
What is between  $t=5$  and  $t=7$ ?

I stopped for  
2 hours and  
remained 8km  
away from home

## HW Solutions

Any questions from Page 294-296

#10,11,12,13,17,19,20b,21b,22



$$b) \{x \mid 39 \leq x \leq 121, x \in \mathbb{R}\}$$

$$\{y \mid 11 \leq y \leq 141, y \in \mathbb{R}\}$$

22)

x	y
0	101
1	101
2	100
3	99
4	98
5	97
6	97
7	97

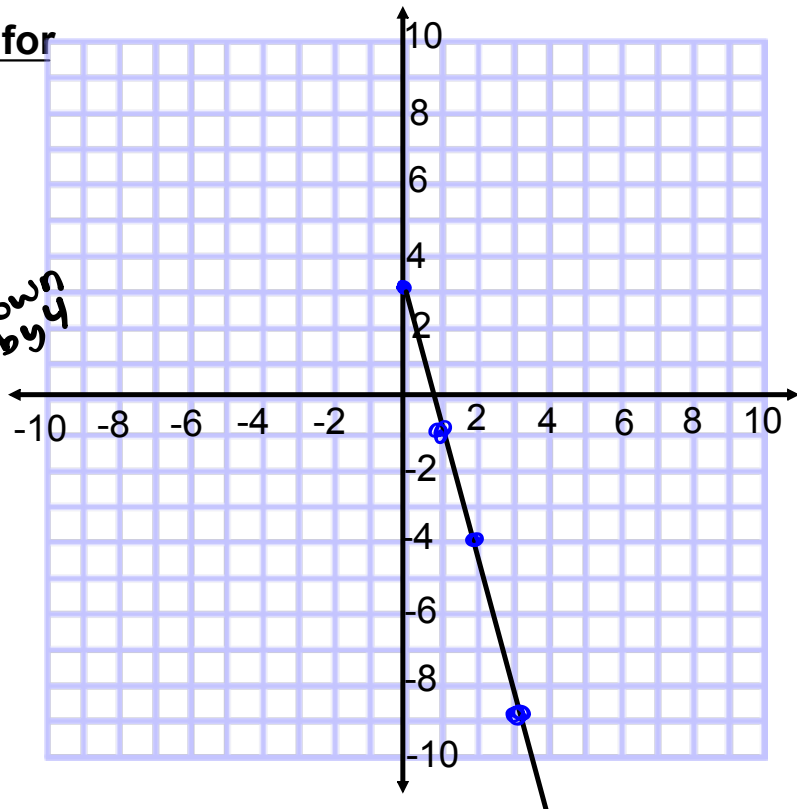
Copy down

Complete the table for

$$y = -4x + 3$$

	x	y
$x=0$	0	+3
$y = -4x + 3$ $= -4(0) + 3$ $= 0 + 3$ $= +3$	1	-1
	2	-5
$x=1$	3	-9
$y = -4x + 3$ $= -4(1) + 3$ $= -4 + 3$ $= -1$	4	-13
	5	-17

↙ down by 4



$$x=2$$

$$y = -4x + 3$$

$$= -4(2) + 3$$

$$= -8 + 3$$

$$= -5$$

Copy down

# Solving Equations

Simplify and then solve for x:

Example 1:

$$15 + x + 16x = 100$$

add like terms

$$15 + 17x = 100$$

$$\frac{17x}{17} = \frac{85}{17}$$

$$x = 5$$

Example 2:

$$-25 = 12x + 10 - 4x$$

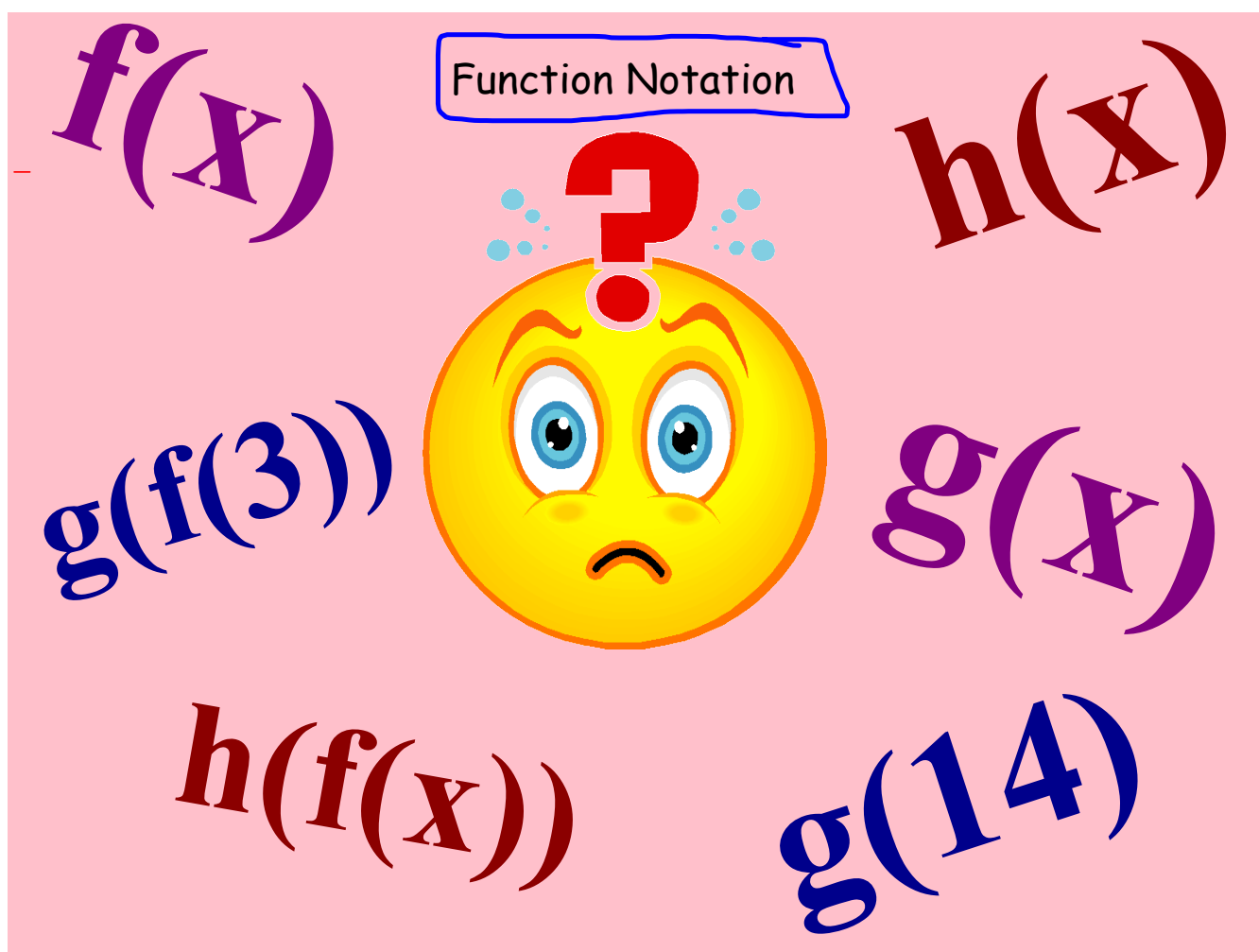
$$-25 = 8x + 10$$

$$-25 - 10 = 8x + 10 - 10$$

$$-35 = 8x$$

$$\frac{-35}{8} = \frac{8x}{8}$$

$$\frac{-35}{8} = x$$



copy down

## Equations

Often in working with a formula we may need to substitute more than one value for the variable.

**Example**

The cost,  $c$ , in cents for making pencils is given by the formula


$$C = 5 + 2n$$

$C$  Cost in cents

$n$  number of pencils made

The cost depends on the number of pencils you buy

copy down **Function**

A function is just an expression evaluated at a specific value

**Example**

The cost,  $c$ , in cents for making pencils is given by the formula



$$C(n) = 5 + 2n$$

$C(n)$  Cost in cents of  
"n" pencils

n number of  
pencils made

The cost depends on the number of pencils you buy



copy down

**Try This!!**

Equation

$$m = 1.27n$$

Function notation

$$m(n) = 1.27n$$

Number of Marbles, $n$	Mass of Marbles, $m$ (g)
0	0
1	1.27
2	2.54
3	3.81
4	5.08
5	6.35
6	7.62

Handwritten annotations on the table: A red circle around the 0 in the first row. A red bracket on the right side of the first two rows labeled  $+1.27$ . Three downward-pointing arrows on the left side of the first three rows.

- State the domain & Range.
- Is this relation a function?
- State the dependent and independent variables.  
(hint: write an equation first)
- Write the function notation.

**1.27**

copy down

Equation

$$P = 12h$$

Function Notation

$$P(h) = 12h$$

Hours Worked, $h$	Gross Pay, $P$ (\$)
1	12
2	24
3	36
4	48
5	60

Let's write the function notation

What is the person's pay after 20 hours?

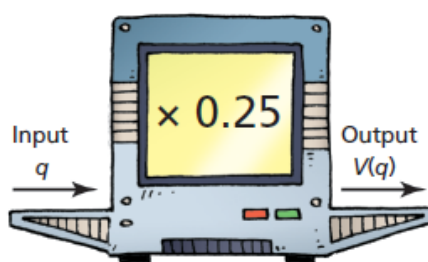
$$h = 20 \quad P = ??$$

$$P(h) = 12h$$

$$P(20) = 12 \times (20)$$
$$= \$240$$

**We can think of functions as input/output machines.**

■ Machine A



Function  $V$

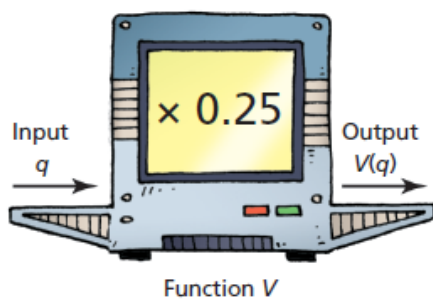
**Input can be number in domain  
(Independent Variable)**

**Output can be number in range  
(Dependent Variable)**



copy down

■ Machine A



When the input is  $q$  quarters, the output or value,  $V$ , in dollars is: ?

?

?

copy down  
Try this on your own!!!!!!!!!!!!!!!!!!!!!!

## Example



The equation  $V = -0.08d + 50$  represents the volume,  $V$  liters, of gas remaining in a vehicle's tank after travelling  $d$  kilometers. The tank is not filled until it is empty.



a) Describe the function.

Write the equation in function notation.

$$V(d) = -0.08d + 50$$

b) Determine the value of  $V(600)$ .

What does this number represent?  
It means there is 2L of gas remaining in the tank after driving 600km.

$$V(d) = -0.08d + 50$$

$$V(600) = -0.08(600) + 50$$

c) Determine the value of  $d$  when  $V(d) = 26$ .

What does this number represent?

$$V(d) = -0.08d + 50$$

$$26 = -0.08d + 50$$

$$26 - 50 = -0.08d + 50 - 50$$

$$-24 = -0.08d$$

$$\frac{-24}{-0.08} = \frac{-0.08d}{-0.08}$$

$$300 = d$$

In order to have 26L of gas left in tank I drove 300 km.

copy down

# Function Notation

## Recap

- To represent functions, we use symbols like  $f(x)$  and  $g(x)$ .
- The symbol  $f(x)$  is read "f of x" and simply means that the expression that follows involves  $x$ .

Complete for Homework

# Evaluating Functions

Show all work

1) If  $f(x) = 3x^2 - x - 6$ , find...

a)  $f(5)$

$$\begin{aligned} \text{a)} \quad f(x) &= 3x^2 - x - 6 \\ f(5) &= 3(5)^2 - 5 - 6 \\ &= 3(25) - 5 - 6 \\ &= 75 - 5 - 6 \\ f(5) &= 64 \end{aligned}$$

b)  $f(-7)$

c)  $f(-3)$

2) If  $g(x) = x + 3$  and  $h(x) = -3x - 2$

a)  $g(5)$       b)  $g(7)$       c)  $h(-10)$       d)  $h(5)$

e)  $g(h(4))$       f)  $g(x) = 33$       g)  $h(x) = -41$

Quiz in two days (Tuesday, Nov 14)

#1) Given two graphs state the

Domain, Range, if a Function/Non-Function, Linear/Non-Linear, Continuous/Discrete (10 points)

#2) Evaluate  $G(x)$  a) when given an  $x$  b) when given a  $g(x)$

(Ex  $G(x) = -3x^2 - 5$  a)  $g(4)$  b)  $g(x) = -305$  )

#3) Word problem . With equation given

a) Given an equation, write it as function notation

b) Determine a value when given  $x$ , explain what the answer means

c) Determine a value of  $y$ , and explain what it means.