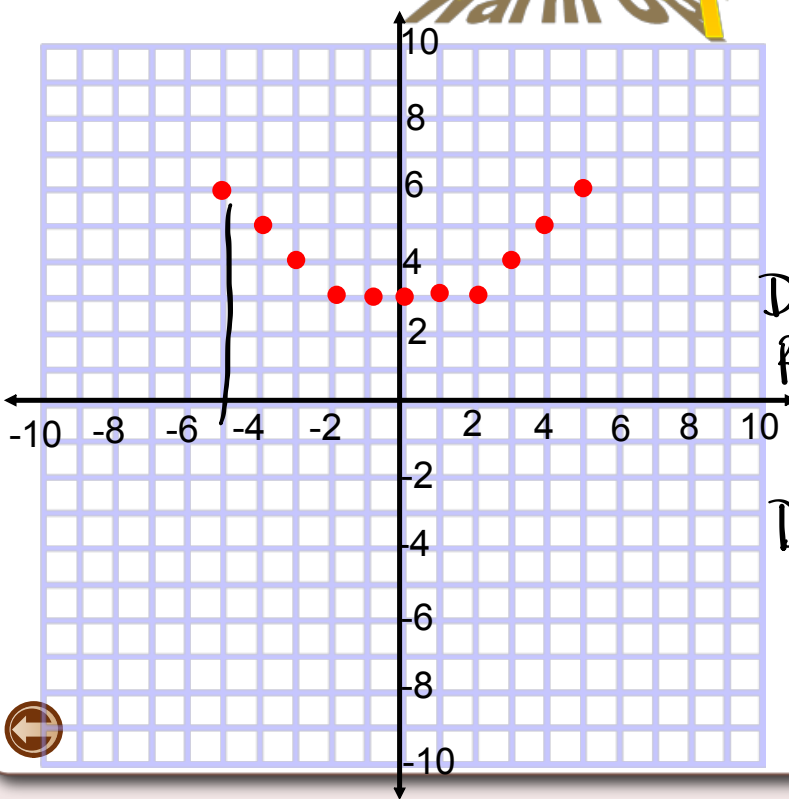
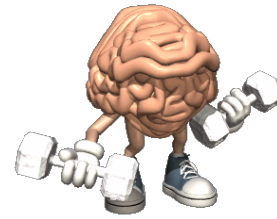


Warm Up



Domain &
Range

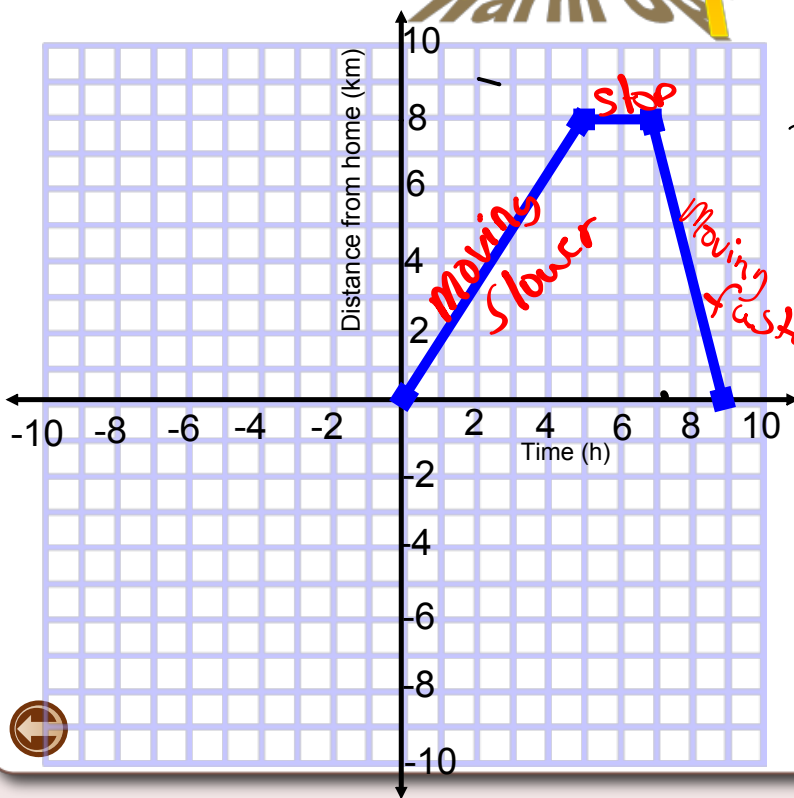
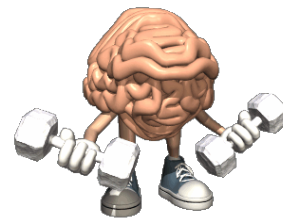
$$D \{x \mid -5 \leq x \leq 5, x \in \mathbb{I}\}$$

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

$$D \{ \quad \}$$



Warm Up



Domain & Range
 $D\{x | 0 \leq x \leq 9, x \in \mathbb{R}\}$
 $R\{y | 0 \leq y \leq 8, y \in \mathbb{R}\}$

What is between t=5 and t=8?
 he stopped



HW Solutions

Any questions from Page 294-296

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

Copy down

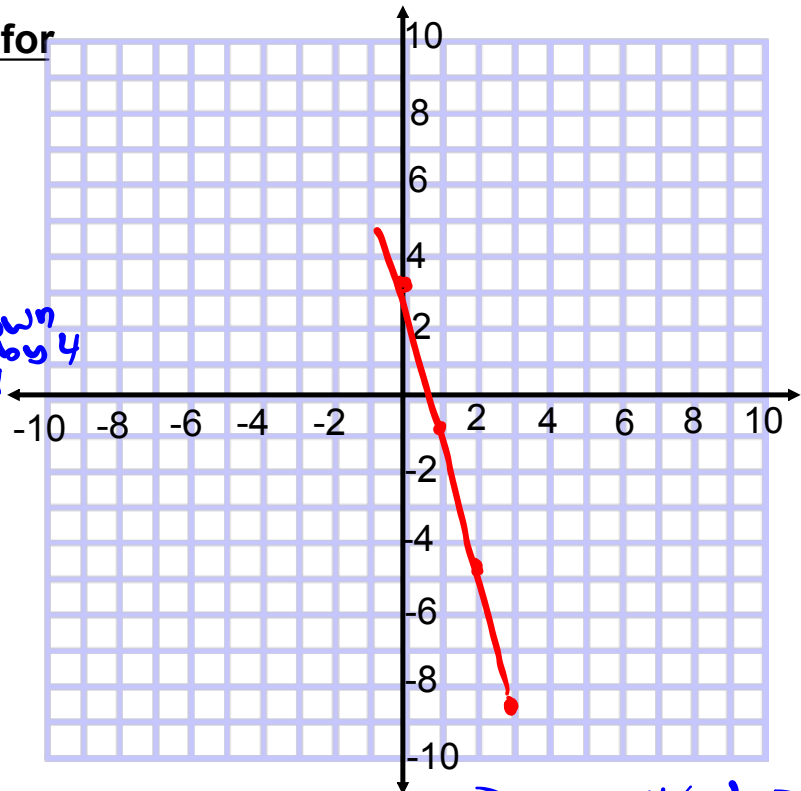
Complete the table for

$y = -4x + 3$

x	y
0	3
1	-1
2	-5
3	-9
4	-13
5	-17

+1 ↷

down by 4



$$y = -4x + 3$$

$$x = 0$$

$$y = -4(0) + 3$$

$$0 + 3$$

$$3$$

$$y = -4x + 3$$

$$x = 1$$

$$-4(1) + 3$$

$$-4 + 3$$

$$-1$$

$$y = -4(x) + 3$$

$$x = 2$$

$$-4(2) + 3$$

$$-8 + 3$$

$$-5$$

Copy down

Solving Equations

Simplify and then solve for x:

Example 1:

$$15 + \underline{1x} + 16x = 100$$

$$15 + 17x = 100$$

$$\cancel{15} + 17x = 100 - 15$$

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

$$\boxed{x = 5}$$

Example 2:

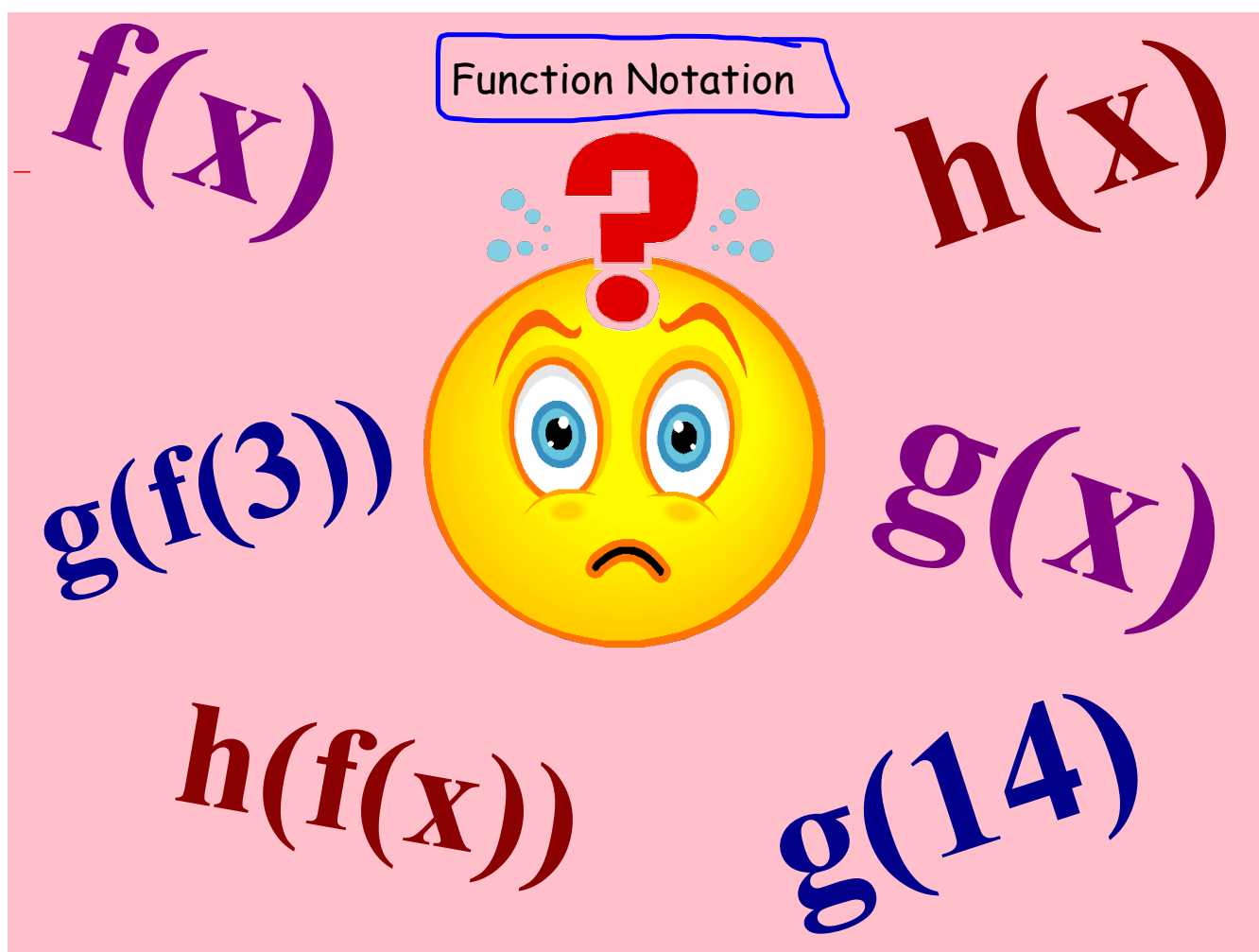
$$-25 = \underline{12x} + 10 - \underline{4x}$$

$$-25 = 8x + 10$$

$$-25 \overset{-10}{=} 8x + 10 - 10$$

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

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



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



Try This!!

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

$\{1, 2, 3, 4, 5, 6\}$ $\{1.27, 2.54, 3.81, 5.08, 6.35, 7.62\}$

- a) State the domain & Range.
- b) Is this relation a function? *NO repeats in n*
- c) State the dependent and independent variables.
mass, m n , # of marble
- d) Write the function notation. (hint: write an equation first)

$$m(n) = \frac{1.27}{1} n$$

$$m(n) = 1.27n$$

1.27

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

Independent (above h) *dependent* (above P)
+12 (next to h) *+12* (next to P)

Let's write the function notation

$$P(h) = 12h$$

What is the person's pay after 20 hours?

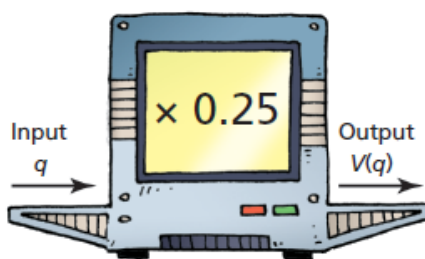
$$h=20 \rightarrow P(h) = 12h$$

$$P(20) = 12(20)$$

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

We can think of functions as input/output machines.

■ Machine A



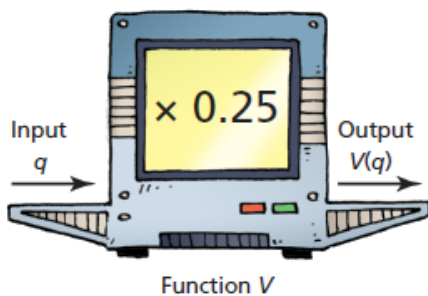
Function V

**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: ?

$$V(q) = 0.25q$$

Since V is a function of q , we can write this equation using **function notation**:

$$V(q) = 0.25q$$

We say: "V of q is equal to $0.25q$."

This notation shows that V is the dependent variable and that V depends on q .

$V(3)$ represents the value of the function when $q = 3$.

$$V(3) = 0.25(3)$$

$$V(3) = 0.75$$

So, the value of 3 quarters is \$0.75.

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.

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

1 pt
test

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

What does this number represent?

There is 2 L of gas remaining after driving 600 km

$$\begin{aligned} V(d) &= -0.08d + 50 \\ V(600) &= -0.08(600) + 50 \\ &= -48 + 50 \\ &= 2 \end{aligned}$$

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

What does this number represent?

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

$$26 = -0.08d + 50$$

Rearrange and solve for "d"

$$26^{-50} = -0.08d + 50 - 50$$

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

$$\boxed{300 = d}$$

For 26L to be left you would have to drive 300 km.



Try This!!!



copy down

3. The equation $C = 25n + 1000$ represents the cost, C dollars, for a feast following an Arctic sports competition, where n is the number of people attending.

- a) Describe the function.

$$C(n) = 25n + 1000$$

Write the equation in function notation.

- b) Determine the value of $C(100)$.

What does this number represent?

- c) Determine the value of n when $C(n) = 5000$.

What does this number represent?



$$\begin{aligned} \text{b) } C(100) &= 25n + 1000 \\ &= 25(100) + 1000 \\ &= 2500 + 1000 \\ &= \$3500 \end{aligned}$$

The cost for 100 people attending is \$3500

$$\begin{aligned} \text{d) } C(n) &= 5000 \\ 5000 &= 25n + 1000 \\ 4000 &= 25n \\ \frac{4000}{25} &= \frac{25n}{25} \\ 160 &= n \end{aligned}$$

copy down

3. The equation $C = 25n + 1000$ represents the cost, C dollars, for a feast following an Arctic sports competition, where n is the number of people attending.

- a) Describe the function.
Write the equation in function notation.
- 

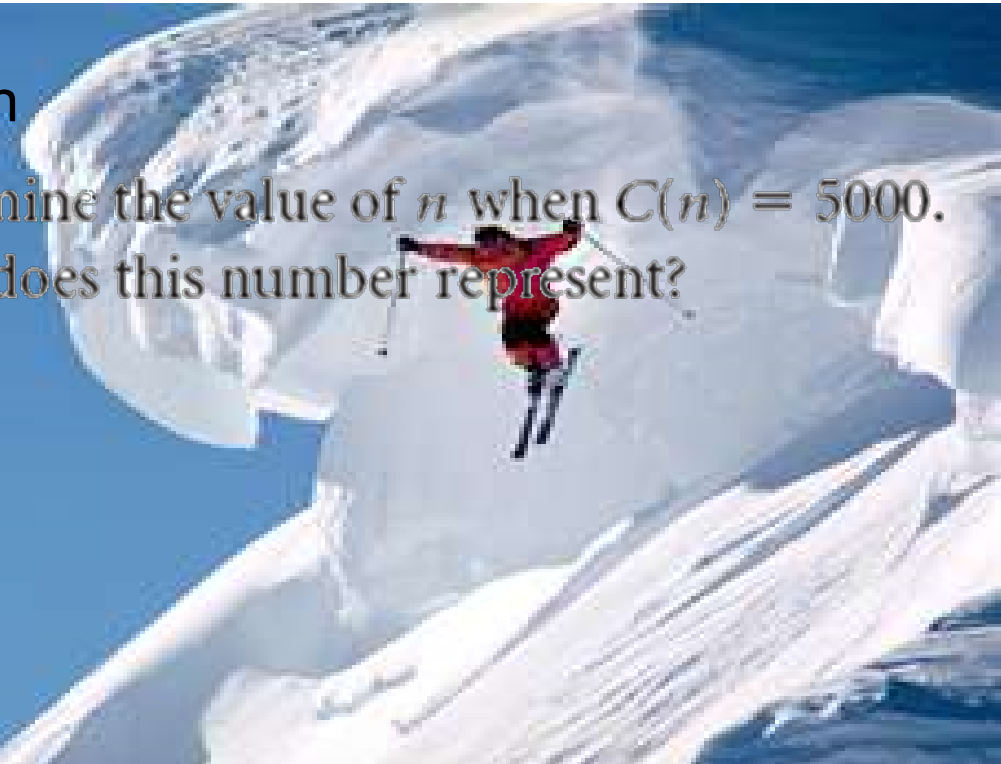
copy down

b) Determine the value of $C(100)$.
What does this number represent?



copy down

c) Determine the value of n when $C(n) = 5000$.
What does this number represent?



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 .

$$g(x) = 3x^2 - 5$$

$$i) g(-3)$$

$$g(x) = 3x^2 - 5$$

$$g(-3) = 3(-3)^2 - 5$$

$$= 3(9) - 5$$

Follow
Bedmas

$$= 27 - 5$$

$$= 22$$

$$ii) g(x) = 187$$

$$g(x) = 3x^2 - 5$$

$$187 = 3x^2 - 5 + 5$$

$$\frac{192}{3} = \frac{3x^2}{3}$$

$$\sqrt{64} = \sqrt{x^2}$$

$$\pm 8 = x$$

Quiz on Function Notation
Domain / Range
Linear / Non-Linear
Continuous / Discrete

Tuesday, Nov. 15

Attachments

FunctionNotationWorksheet.pdf