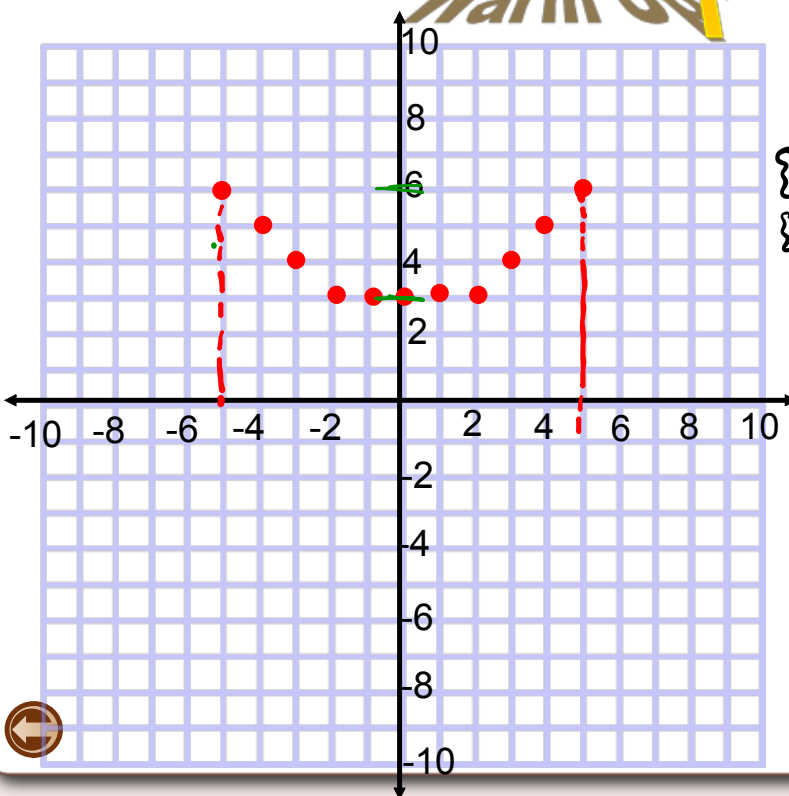
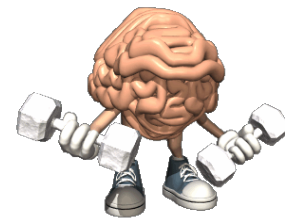


QUIZ Wednesday

Warm Up



Domain & Range
 $\{x | -5 \leq x \leq 5, x \in \mathbb{I}\}$
 $\{y | 3 \leq y \leq 6, y \in \mathbb{I}\}$

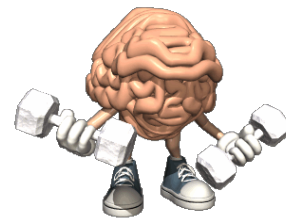
Function/non-Function

Linear/nonlinear

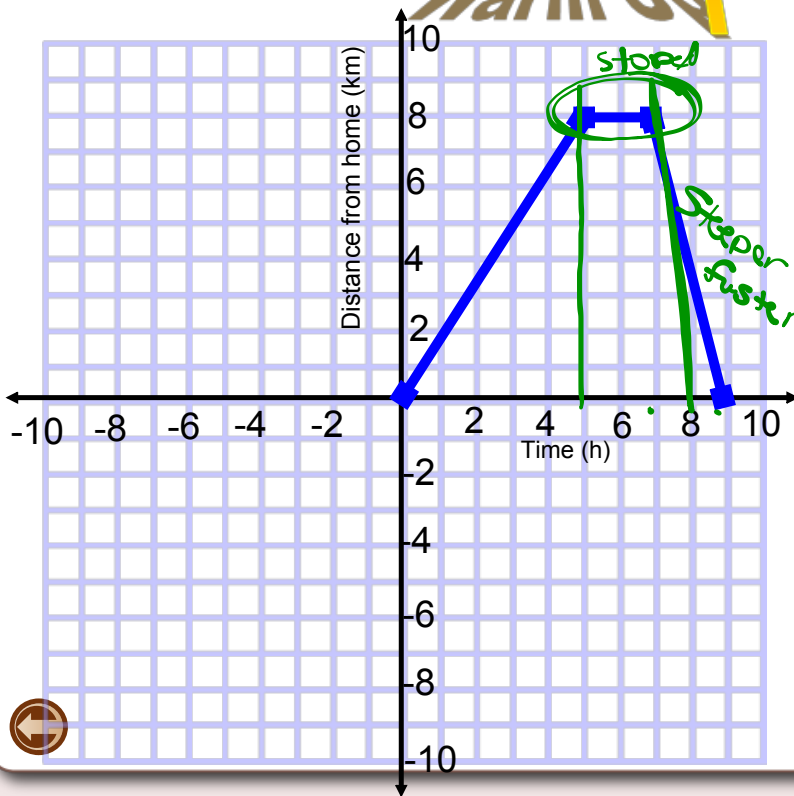
Continuous or discrete



Warm Up



Domain & Range



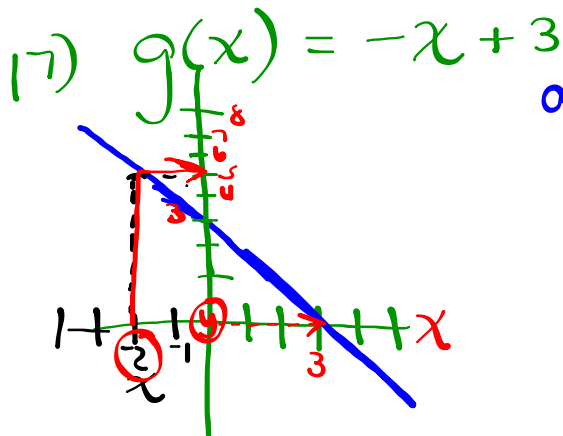
What is between $t=5$ and $t=8$?



HW Solutions

Any questions from Page 294-296

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



a) Determine range when domain is -2

$$x = -2$$

$$y = ? \quad +5$$

$$g(x) = -x + 3$$

$$\downarrow$$

$$-(-2) + 3$$

$$\underbrace{+2} + 3$$

$$+5$$

b) Range = 0
 $y = 0$
 what is $x = ?$

$$g(x) = -x + 3$$

when Range

$$0 = -x + 3$$

Solve

$$0 - 3 = -x + 3 - 3$$

$$\frac{-3}{-1} = \frac{-x}{-1}$$

$$\boxed{3 = x}$$

Copy down

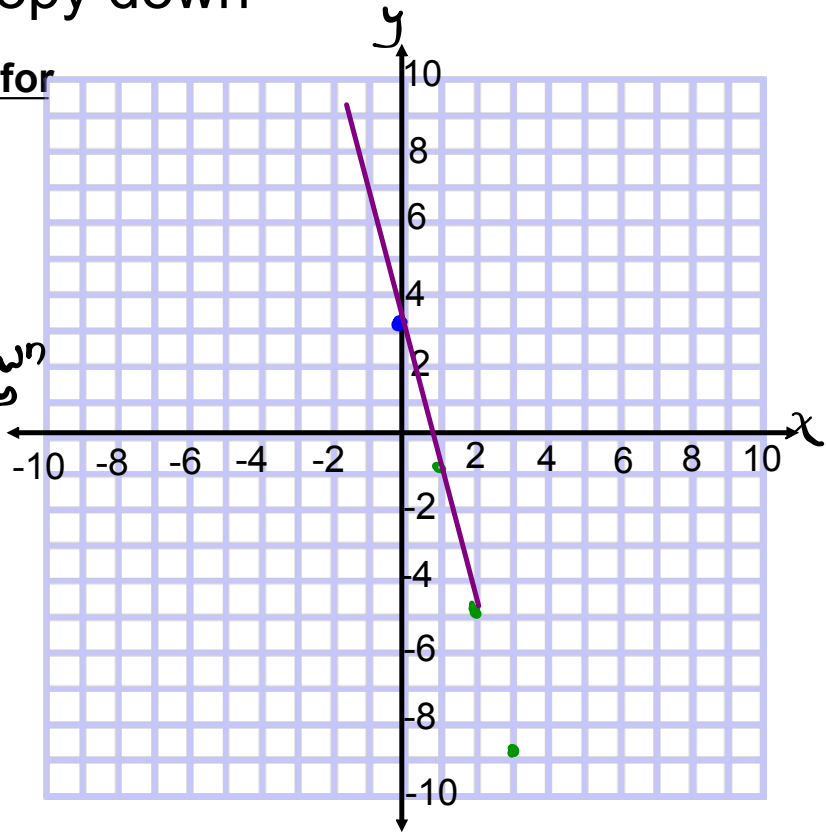
Complete the table for

$y = -4x + 3$

Ind Domain Range

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

Handwritten notes: $+1$ (circled), \downarrow (circled), and arrows indicating a decrease of 4 in y for each increase of 1 in x.



$y = -4x + 3$

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

$x = 1$
 $y = -4(x) + 3$
 $= -4(1) + 3$
 $= -4 + 3$
 $= -1$

$x = 2$
 $y = -4(x) + 3$
 $= -4(2) + 3$
 $= -8 + 3$
 $= -5$

Copy down

Solving Equations

Simplify and then solve for x:

Example 1:

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

$$15 + 17x = 100$$

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

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

$$x = 5$$

Example 2:

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

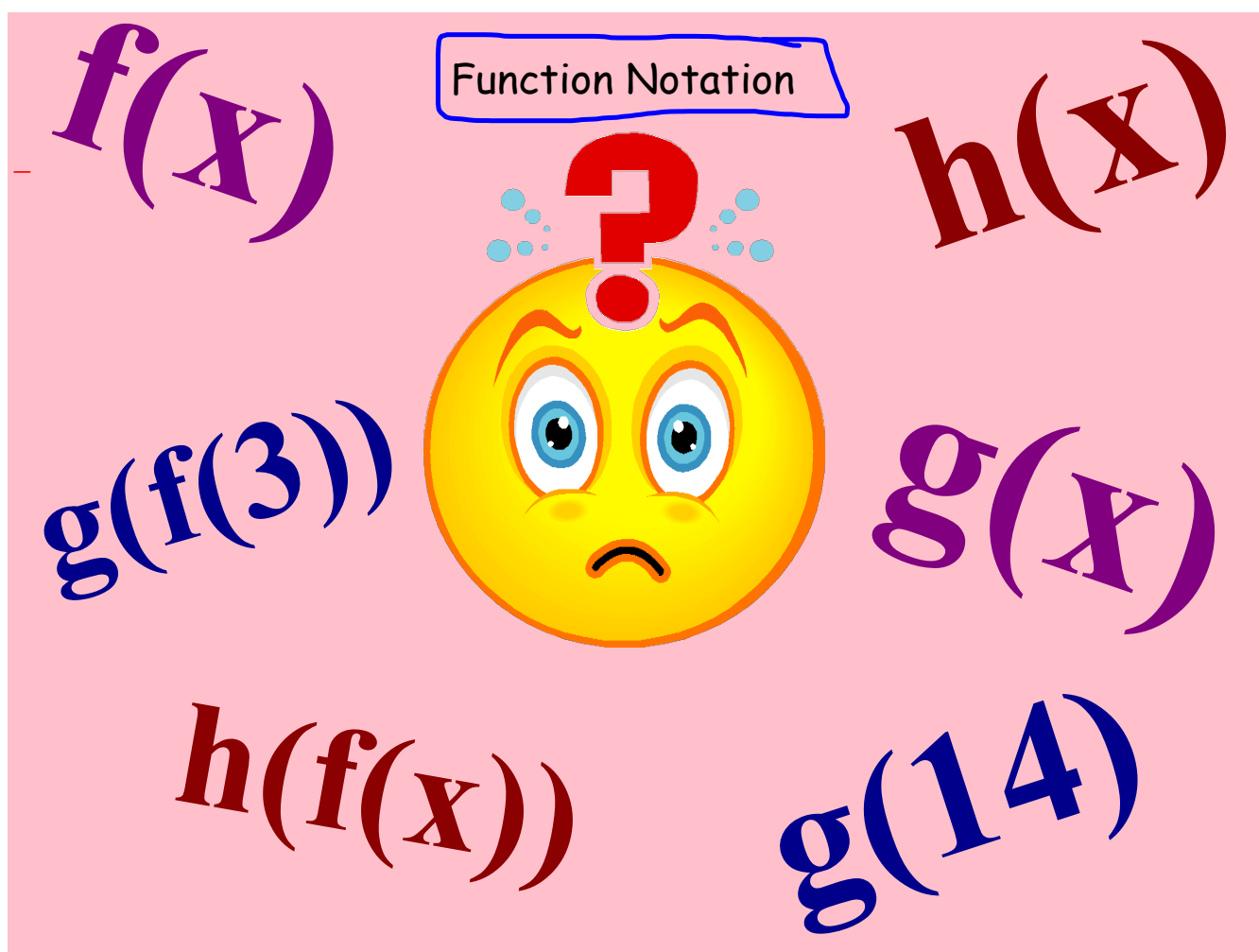
$$-25 = 8x + 10$$

$$\underbrace{-25}^{-10} = 8x + \cancel{10 - 10}$$

$$-35 = 8x$$

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

$$-4.38 = x$$



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
 $m = 1.25n$

Function Notation

$$m(n) = 1.25n$$

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

Handwritten annotations: A green circle around the '1' in the first row of the table. A bracket on the right side of the table spans from the first row to the second row, labeled '+1.27'. Arrows on the left side of the table point from the '1' in the first row to the '2' and '3' in the second and third rows respectively.

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

1.27

copy down

Hours Worked, h	Gross Pay, P (\$)
0	0
1	12
2	24
3	36
4	48
5	60

$P = 12h$

function notation

$P(h) = 12h$

Let's write the function notation

What is the person's pay after 20 hours?

$h = 20$

$P(h) = 12h$

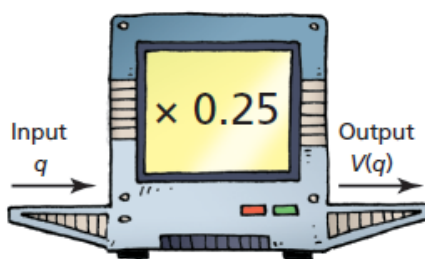
$$P(20) = 12 \times 20$$

$$= 240$$

Your pay for 20h is \$240

We can think of functions as input/output machines.

■ Machine A

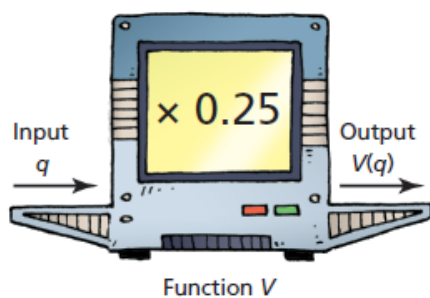


**Input can be number in domain
(Independent Variable)**

**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: ?

? $V = 0.25q$

? $V(q) = 0.25q$

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?

There is 2L remaining after travelling 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?

$$\begin{aligned} V(d) &= -0.08d + 50 \\ 26 &= -0.08d + 50 \end{aligned}$$

$$\begin{aligned} \underline{26 - 50} &= \underline{-0.08d + 50 - 50} \\ -24 &= \underline{-0.08d} \\ \underline{-0.08} & \quad \underline{-0.08} \end{aligned}$$

$$300 = d$$

$$\begin{matrix} d, v \\ (300, 26) \end{matrix}$$

So driving 300 km I will have 26 L left



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?



b) $C(n) = 25n + 1000$
 $C(100) = 25(100) + 1000$
 $2500 + 1000$
 $\$ 3500$

If 100 people attend
it will cost \$3500
for the feast

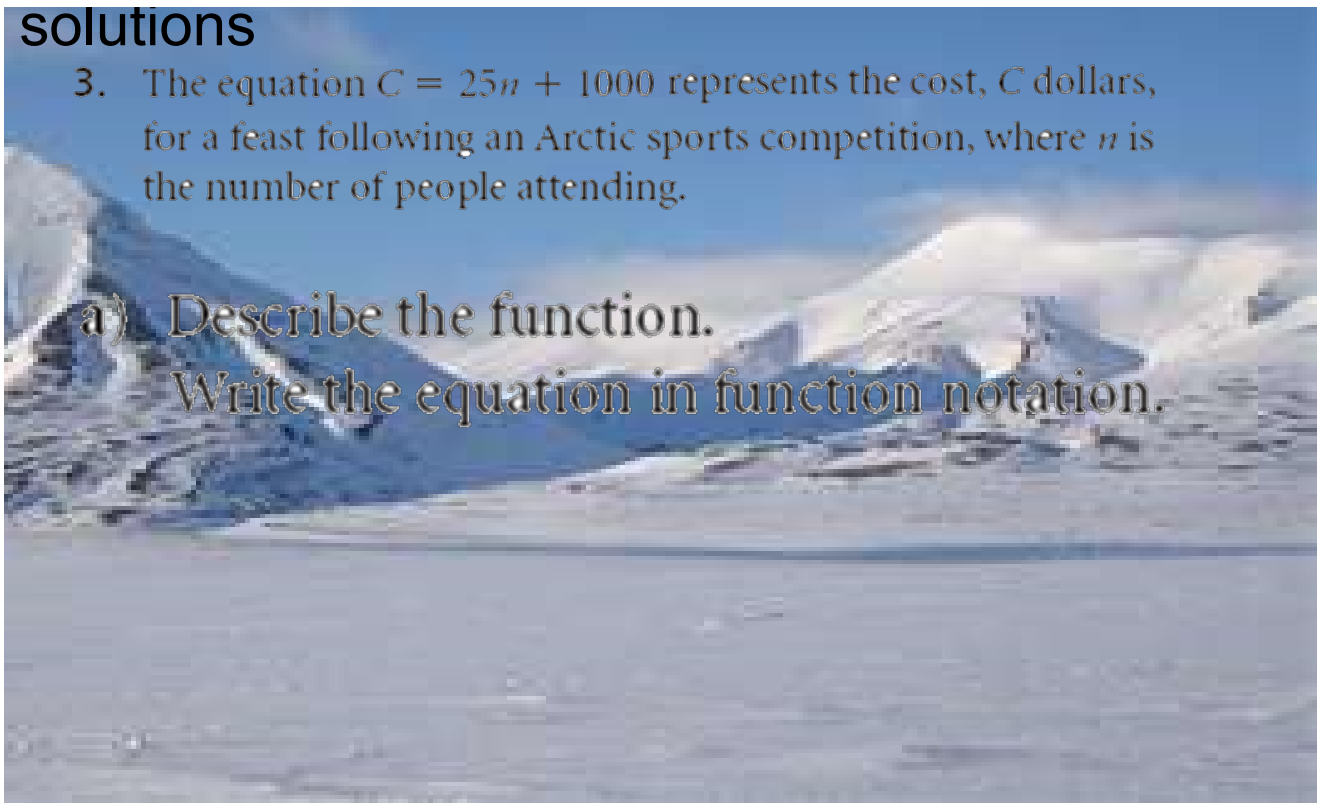
c) $C(n) = 25n + 1000$
 $5000 = 25n + 1000$
 $5000 - 1000 = 25n + 1000 - 1000$
 $4000 = 25n$
 $\frac{4000}{25} = \frac{25n}{25}$
 $160 = n$

If I have \$5000 for
the feast then I can
invite 160 people

solutions

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.



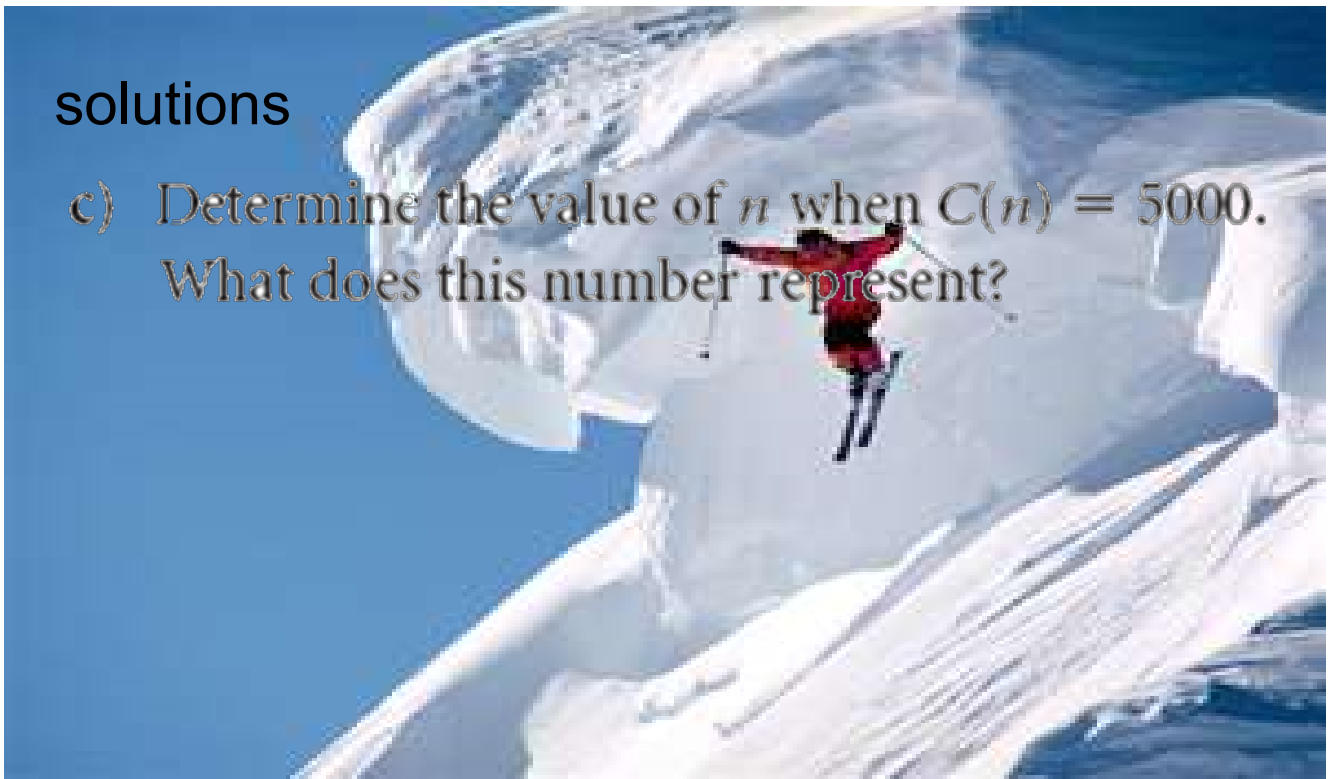
solutions

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



solutions

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 .

copy down

Evaluating Functions

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

$$\begin{aligned} a) f(5) &= 3(5)^2 - (5) - 6 \\ &= 3(25) - 5 - 6 \\ &= 75 - 5 - 6 \\ &= 70 - 6 \\ f(5) &\Rightarrow \boxed{64} \end{aligned}$$

Worksheet



Quiz in two days (Wednesday, April 26)

#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.

Algebra I
Function Notation Worksheet

Name: _____
Hour: _____ Date: _____

1. Evaluate the following expressions given the functions below:

$$g(x) = -3x + 1 \quad f(x) = x^2 + 7 \quad h(x) = \frac{12}{x} \quad j(x) = 2x + 9$$

a. $g(10) =$

b. $f(3) =$

c. $h(-2) =$

d. $j(7) =$

e. $h(3)$

f. Find x if $g(x) = 16$

g. Find x if $h(x) = -2$

h. Find x if $f(x) = 23$

i. CHALLENGE! $g(j(7))$

j. CHALLENGE! $f(h(4))$

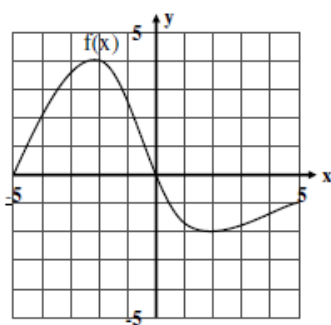
2. Translate the following statements into coordinate points: (x, y)

a. $f(-1) = 1$

b. $h(2) = 7$

c. $g(1) = -1$

d. $k(3) = 9$

3. Given this graph of the function $f(x)$:

Find:

a. $f(-4) =$

b. $f(0) =$

c. $f(3) =$

d. $f(-5) =$

e. x when $f(x) = 2$

f. x when $f(x) = 0$

1a) $g(10)$

$$g(x) = -3x + 1$$

$$g(10) = -3(10) + 1$$

$$-30 + 1$$

$$g(10) = -29$$

#1 a* b c, f

#2 g i

#3 ab ef

i) $g(j(7))$

Do first
find ans

$j(7)$

then

do

g (answer)

f) $g(x) = 16$

$$g(x) = -3x + 1$$

$$16 = -3x + 1$$

get x by itself

$$16 - 1 = -3x + 1 - 1$$

$$\frac{15}{-3} = \frac{-3x}{-3}$$

$$-5 = x$$

#2 a) $f(-1) = \frac{1}{9}$

 (x, y)
 $(-1, \frac{1}{9})$

$$1g) \quad h(x) = -2$$

$$h(x) = \frac{12}{x}$$

$$x \cdot -2 = \frac{12}{x} \cdot x$$

$$\frac{-2x}{-2} = \frac{12}{-2}$$

$$x = -6$$

Attachments

FunctionNotationWorksheet.pdf