Grade 9 Warm Up

A local company offers a cell phone plan that has a fixed cost per month and a cost related to the number of text messages sent. The fixed cost is $20 and each message sent cost 15 cents.

0	20	+0.15
1	20.15	+0.15
2	20.30	

i) Write an equation that relates the total cost, C, to the number of text messages sent, t.

$$C = 0.15t + 20$$

ii) How much would your bill be if you sent 123 text messages in one month?

$$\begin{aligned} C &= 0.15t + 20 \\ &= 0.15(123) + 20 \\ &= 18.45 + 20 \\ &= 38.45 \end{aligned}$$

It will cost $38.45

Extra practice - did anyone need help.

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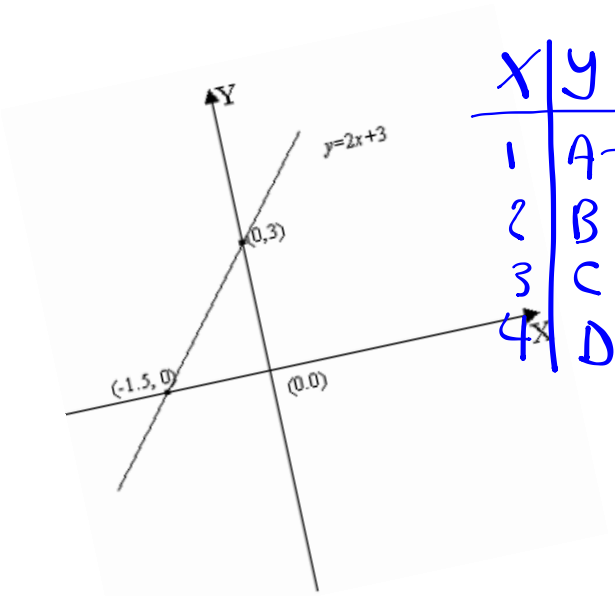
16 to 20

Section 4.2

Linear Relations

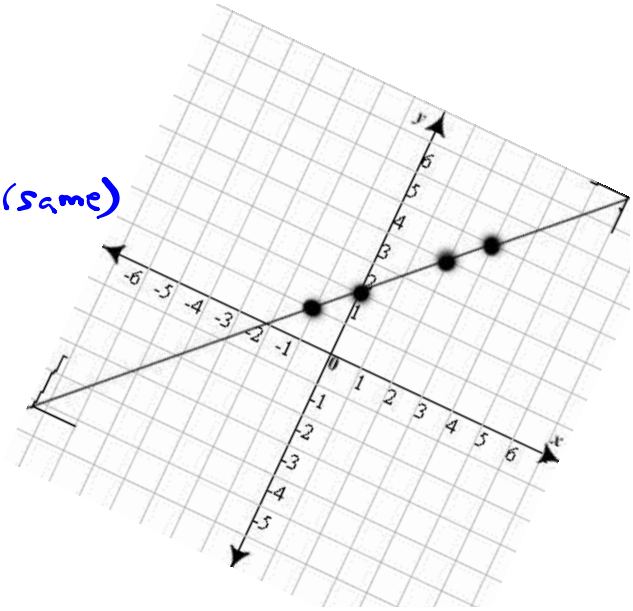


x	y
1	A
2	B
3	C
4	D

2 (same)

2

2



Remember ME

Let's look at it again.

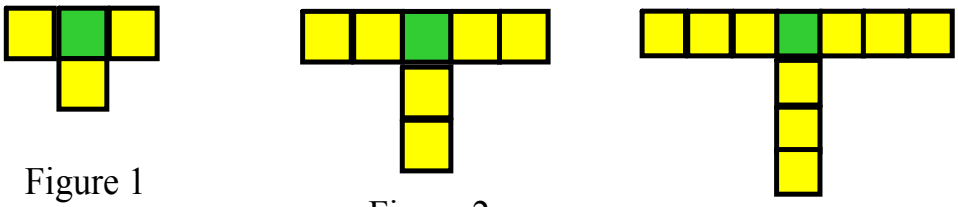


Figure 1

Figure 2

Figure 3

Figure #	# of Blocks
1	4
2	7
3	10
6	19
10	31

+3

+3

$3f + 1$

THUS

Write an equation that relates the number of blocks, n, to the figure number, f.

$n = 3f + 1$

$n = 3(6) + 1$
$= 19$

$n = 3(10) + 1$
$= 31$

Remember ME

Let's look at it again.

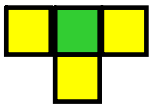


Figure 1

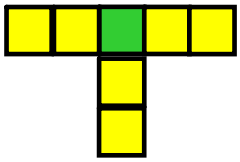


Figure 2

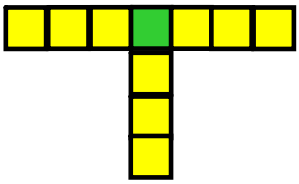
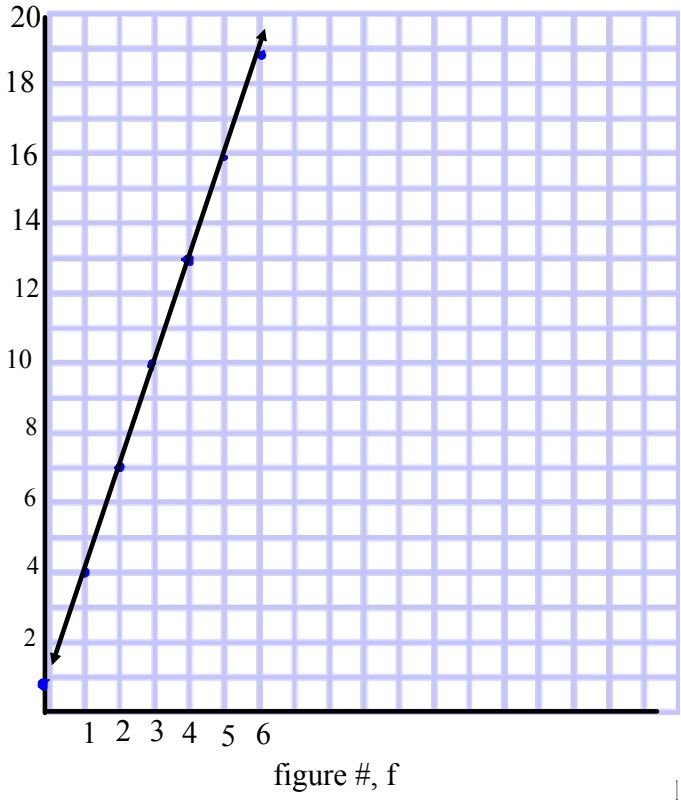


Figure 3

Figure #	# of Blocks
1	4
2	7
3	10
4	13
5	16
6	19

$h = 3f + 1$



THUS

For figure f, the number of blocks will be 3f +1
If n is the number of blocks then the equation is: n = 3f + 1

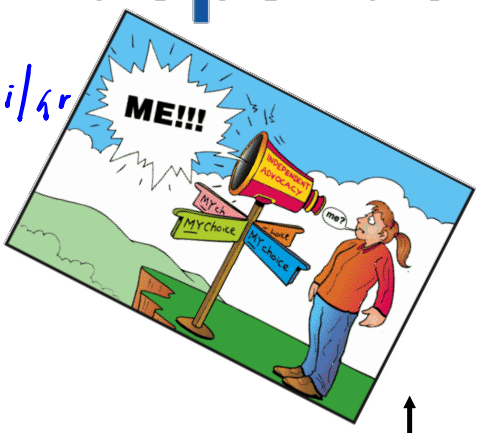
What changes the value of n???

So the value of ____ depends on the value of _____.

Dependent VS. Independent

$y = 2x + 4$ Similar

If the equation is: $P = 2n + 4$



P is the dependent variable

n is the independent variable

Dependent variable is always plotted on vertical axis (y-axis) ↕

Independent variable is always plotted on the horizontal axis (x-axis) ↔

$m = 2n + 5$

Mary = 2(student) + 5

dependent variable

independent variable

Linear Relation

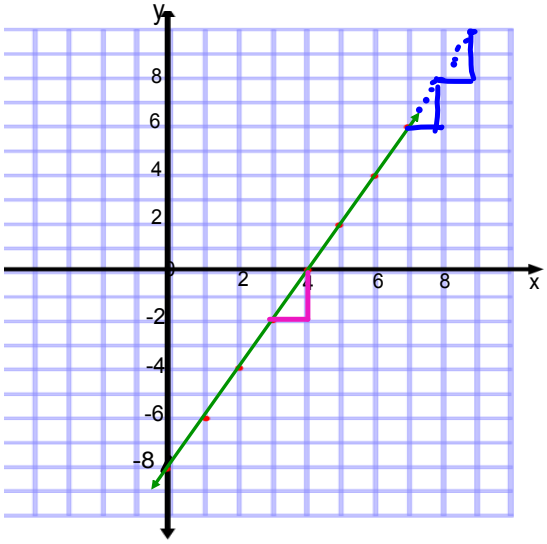
- is when the graph is a straight line
- a constant change in 'x' causes a constant change in 'y'

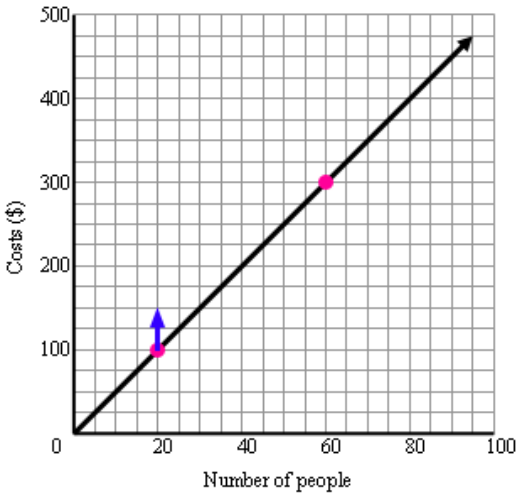
$y = 2x - 8$

Table of Values

x	y
0	-8
1	-6
2	-4
3	-2

+1 +2



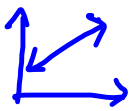


Concrete vs. Discrete

Discrete : Unconnected Data

pizza toppings

Concrete: Connected Data



age

Think about the two situations

Cost of video games

Number of Video games	Cost, C($)
1	25
2	50
3	75

Can you buy 1.5 video games?

So would you connect the dots???

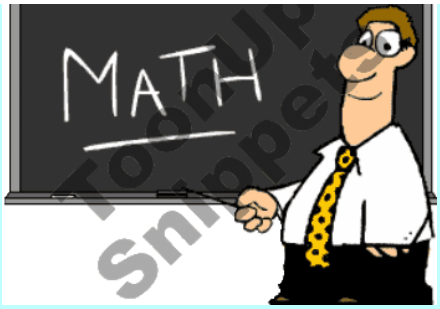
Babysitting Job

Number of Hours	Earnings, C($)
1	10
2	20
3	30

Can you work 1.5 hours?

So would you connect the dots???

A relationship has the equation: y = 7-2x



a) Create a table of values for the relation for values -2 to 2.

x	y
-2	11
-1	9
0	7
1	5
2	3

-2 -2 -2 -2

We have to do some work!

for x = -2

y = 7 - 2(x)
y = 7 - 2(-2)
y = 7 - (-4)
y = 11

y = 7-2(x)
= 7-2(-1)
= 7+2
= 9

y = 7-2(0)
= 7

y = 7-2(1)
= 7-2
= 5

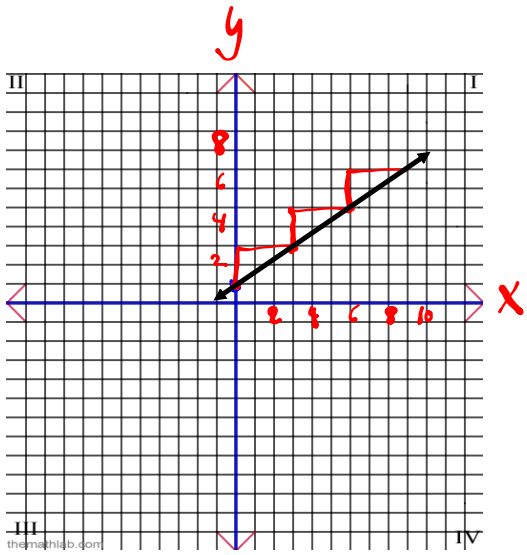
y = 7-2(2)
= 7-4
= 3

Choose Numbers that are easy to work with

$$y = \frac{2}{3}x + 1$$

x	y
-6	-3
-3	-1
0	1
3	3
6	5

+3 +3 +3 +2 +2 +2



Class/Homework

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