



Warm Up Grade 8

Oct. 25, 2016



1) Find the missing value for the ordered pairs of $y = 2x - 7$
(show work)

a) $(-2, \underline{\quad})$

b) $(\underline{\quad}, 29)$

$$\begin{aligned}y &= 2(x) - 7 \\&= 2(-2) - 7 \\&= -4 \quad \overline{-7} \\&= -4 + (-7) \\&= -11 \\(-2, -11)\end{aligned}$$

$$29)$$

4a) $y = x + 1$

Input	Output
x	y
1	2
2	3
3	4
4	5
5	6

b) $y = x + 3$

Input	Output
x	
1	4
2	5
3	6
4	7
5	8

+1 (on the left side of the table) and +1 (on the right side of the table)

$$x=1$$

$$y=x+3$$

$$y=(1)+3$$

$$=4$$

$$x=2$$

$$y(x)+3$$

$$=(2)+3$$

$$=5$$

$$x=3$$

$$y=(x)+3$$

$$=\downarrow$$

$$3+3$$

$$=6$$

c) $y = 2x$

Input	Output
x	y
1	2
2	4
3	6
4	8
5	10

5. a) $y = 2x + 1$

Input	Output
x	y
1	3
2	5
3	7
4	9
5	11

+1 (x) +2 (y)

$$y = 2(x) + 1$$

$$x = 1$$

$$\underbrace{2(1) + 1}_{2 + 1}$$

$$3$$

$$x = 2$$

$$2(x) + 1$$

$$2(2) + 1$$

$$4 + 1$$

$$5$$

$$x = 3$$

$$2x + 1$$

$$2(3) + 1$$

$$6 + 1$$

$$7$$

b) $y = 2x - 1$

Input	Output
x	y
1	1
2	3
3	5
4	7
5	9

$$2(x) - 1$$

$$2(1) - 1$$

$$2 - 1$$

$$1$$

$$2(2) - 1$$

$$4 - 1$$

$$3$$

$$2(3) - 1$$

$$6 - 1$$

$$5$$

c) $y = -2x + 1$

Input	Output
x	y
1	-1
2	-3
3	-5
4	-7
5	-9

increases by (1) decreases by (-2)

$$x = 1$$

$$-2(1) + 1$$

$$-2 + 1$$

$$-1$$

$$x = 2$$

$$-2(2) + 1$$

$$-4 + 1$$

$$-3$$

$$x = 3$$

$$-2(3) + 1$$

$$-6 + 1$$

$$-5$$

b. ordered pairs

Input	Output
x	y
0	-7
1	2
2	11
3	20
4	29
5	38

$$y = 9x - 7$$

$x=2$ $9(2) - 7$
 $18 - 7$
 11

$x=4$
 $9 \times 4 - 7$
 $36 - 7$
 29

$$y = 9(x) - 7$$

$38 = 9x - 7$ or
 $38 + 7 = 9x - 7 + 7$
 $45 = 9x$
 $\frac{45}{9} = \frac{9x}{9}$
 $5 = x$

see if pattern continue

$9 \times 5 - 7$
 $45 - 7$
 38

7. $w = 7h$

Input	Output
h	$7h$
1	7
2	14
3	21
4	28
5	35

$7h$
 $h=1$ $7(1) = 7$
 $h=2$ $7(2) = 14$
 $h=3$ $7(3) = 21$

Input	Output
8	56
9	63
10	70
11	77
12	84
13	91
14	98
15	105

$b) 7h = 105$
 $\frac{7h}{7} = \frac{105}{7}$
 $h = 15$

$c) h = 24$
 $w = 7h$
 $= 7 \times 24$
 $= \$168$

$w = 7h$
 $= 7(24)$
 $= \$168$

$2 \overline{) 140 \mid 28}$

8a)
😊

$$y = x + 2$$

Input	Output
x	y
-3	-1
-2	0
-1	1
0	2
1	3
2	4
3	5

Input	Output

b)

$$y = x - 3$$

Input	Output
x	y
-3	-6
-2	-5
-1	-4
0	-3
1	-2
2	-1
3	0

c)
😊

$$y = x + 4$$

Input	Output
x	y
-3	1
-2	2
-1	3
0	4
1	5
2	6
3	7

pa357
9a)

$$y = -2x + 3$$

Input	Output
0	3
1	1
2	-1
3	-3
4	-5
5	-7

b) $y = -5x - 4$

Input	Output
0	-4
1	-9
2	-14
3	-19
4	-24
5	-29

c) $y = 8x - 3$

Input	Output
0	-3
1	5
2	13
3	21
4	29
5	37

10

$$y = -3x + 5$$

Input x	Output y
-3	14
-1	8
1	2
3	-4
5	-10
7	-16

ordered pairs

$$\begin{aligned}
 x &= 1 \\
 y &= -3x + 5 \\
 &= -3 + 5 \\
 &= 2
 \end{aligned}$$

$$\begin{aligned}
 x &= 5 \\
 y &= -3x + 5 \\
 &= -15 + 5 \\
 &= -10
 \end{aligned}$$

$$\begin{aligned}
 -16 &= -3x + 5 \\
 -16 - 5 &= -3x + 5 - 5 \\
 -21 &= -3x \\
 \frac{-21}{-3} &= \frac{-3x}{-3} \\
 7 &= x
 \end{aligned}$$

!! a) $y = -2x + 7$

a) $(-8, _)$

$$y = -2(-8) + 7$$

$$= 16 + 7$$

$$= 23$$

b) $(12, _)$

$$y = -2(12) + 7$$

$$= -24 + 7$$

$$= -17$$

c) $(_, 31)$

$$31 = -2x + 7$$

$$31 - 7 = -2x + 7 - 7$$

$$24 = -2x$$

$$\frac{24}{-2} = \frac{-2x}{-2}$$

$$-12 = x$$

d) $(_, -23)$

$$-23 = -2x + 7$$

$$-23 - 7 = -2x + 7 - 7$$

$$-30 = -2x$$

$$\frac{-30}{-2} = \frac{-2x}{-2}$$

$$15 = x$$

12. $m = 100 - 2n$

n	100 - 2n
Input	Output
0	100
5	90
10	80
15	70
20	60
25	50

increases by 5
decreases by 10

$n=0$
 $100 - 2(0)$
 $100 - 0$
 100

$n=5$
 $100 - 2(5)$
 $100 - 10$
 90

$n=10$
 $100 - 2(10)$
 $100 - 20$
 80

(b)
→ after 20 weeks
he will have a mass
of 60kg

b) $100 - 2n = 60$

$$100 - 2n - 100 = 60 - 100$$

$$-2n = -40$$

$$\frac{-2n}{-2} = \frac{-40}{-2}$$

$$n = 20$$

In 20 months
he will have
reached 60kg

c) $n=7$, $100 - 2n$
 $100 - 2(7)$
 $100 - 14$
 86

On his 7-day
his mass was
86kg

$$B. a) m = 9t$$

$m \rightarrow$ multiples of 9

$t \rightarrow$ the number you multiply by

Input t	Output m
0	0
1	9
2	18
3	27
4	36
5	45

c) numbers go up by 9

A number is divisible by 9 if the sum of the digits is a multiple of 9.

$$d) 126 \rightarrow 1 + 2 + 6 = 9$$

so yes 126 is divisible by 9.

e) 17th multiple of 9

$$17 \times 9 = 153$$

Ex 1)

a) Create a table of values

Graph $y = 3x$

b) Graph the relation

$x=0$
 $3(0)$
 0

$u = 3x$

* $x = -2$
 $3(-2)$
 -6

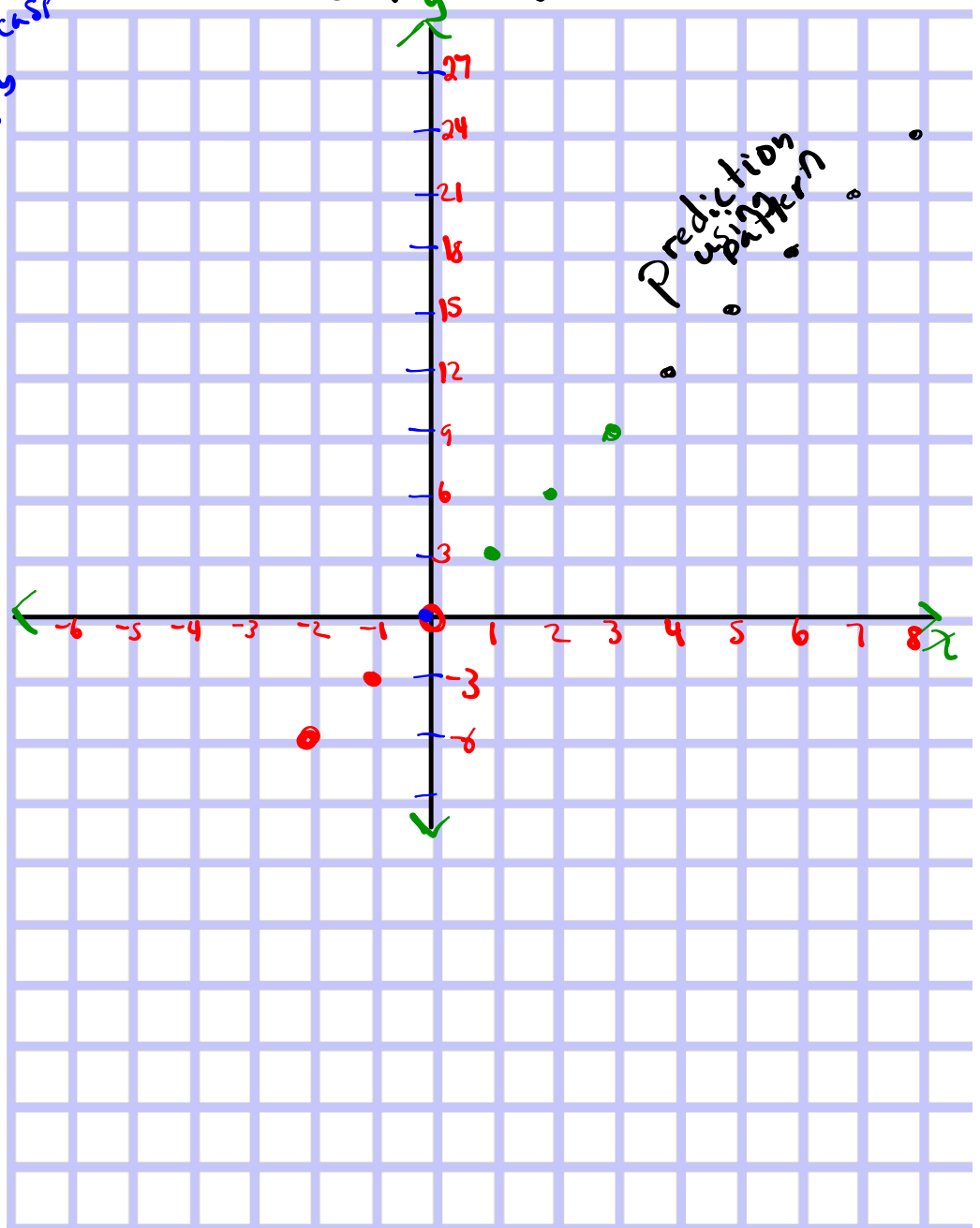
$x = -1$
 $3(-1)$
 -3

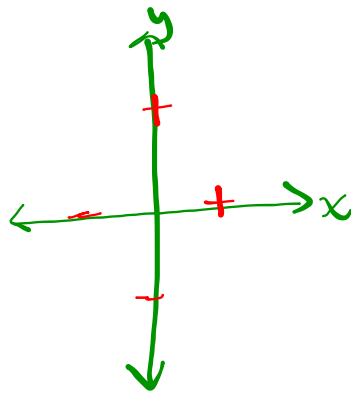
c) Describe the relations

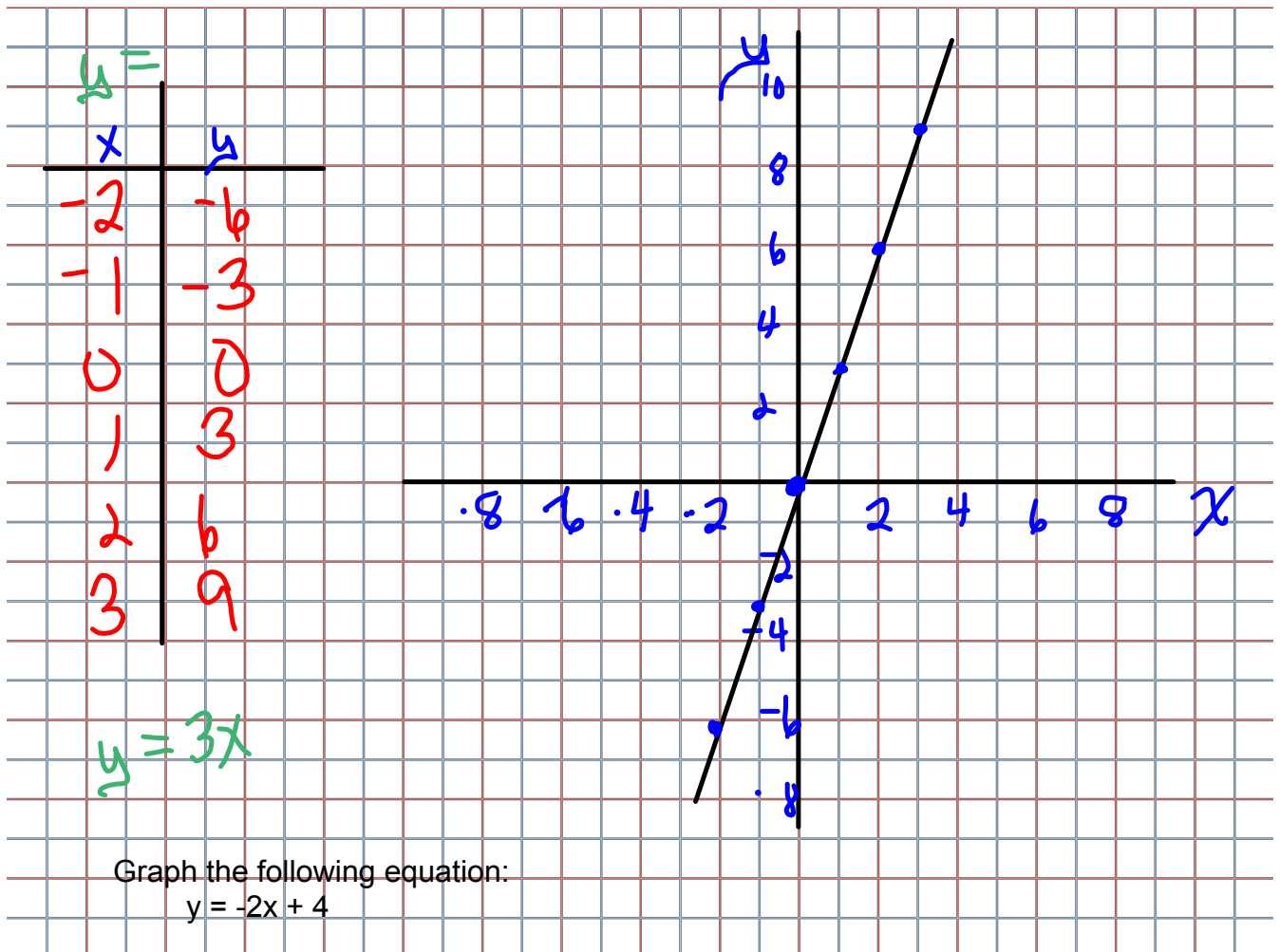
As the x input increases by 1 the output y will increase by 3.
Graph of $y = 3x$

x	y
-2	-6
-1	-3
0	0
1	3
2	6
3	9

Handwritten notes: "increase by 3" with arrows pointing up between rows; "increase by 1" with arrows pointing right between columns.







Ex) 2

Graph $y = -2x + 4$

a) Create a table of values

b) Graph the relation

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

decrease by 2
-2
-2
-2
-2
-2

c) Describe the relations

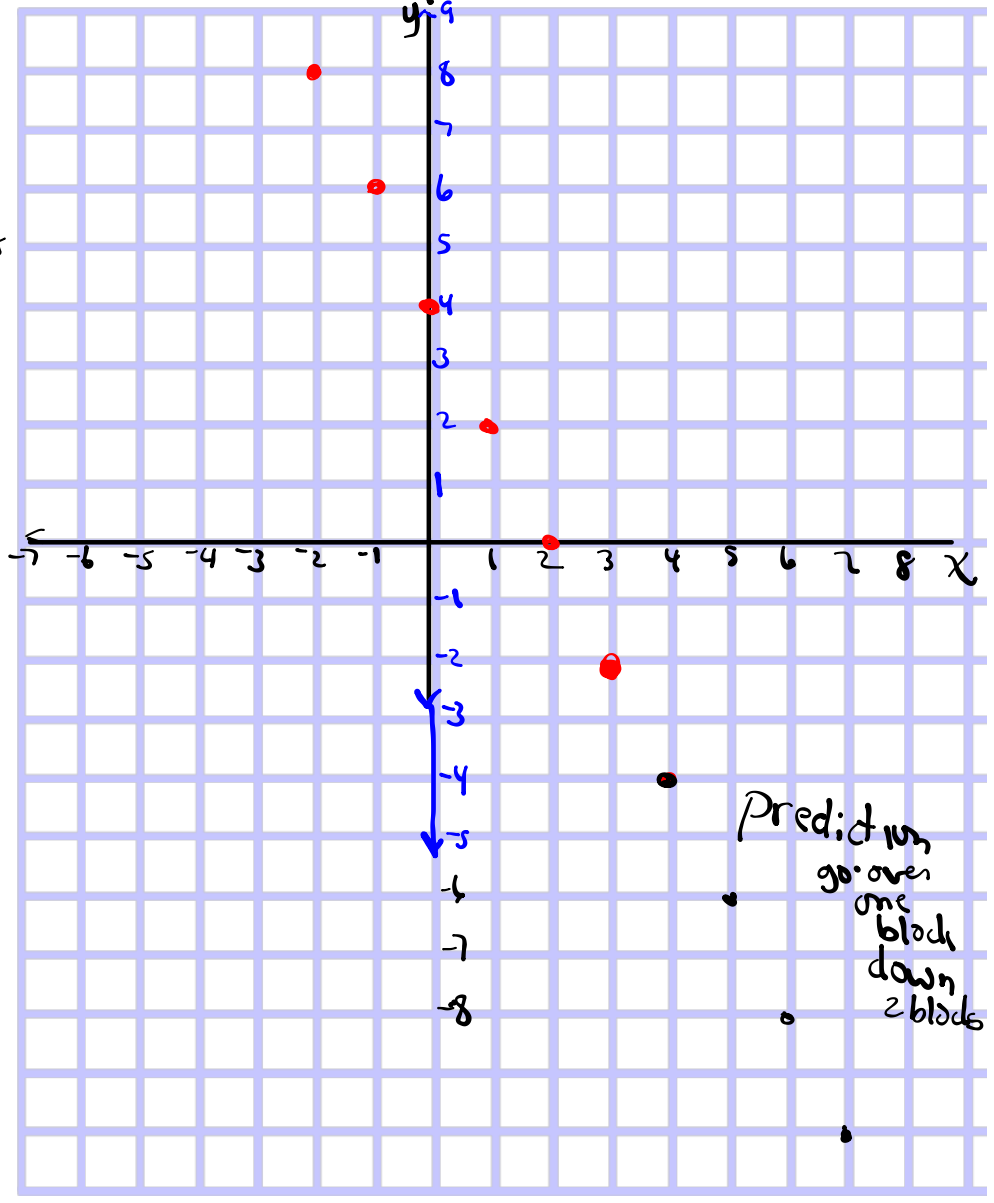
$y = -2(x) + 4$
 $x = -2$
 $y = -2(-2) + 4$
 $+4 + 4$
 8

$y = -2(x) + 4$
 $-2(1) + 4$
 $+2 + 4$
 6

$y = -2(x) + 4$
 $x = 0$
 $-2(0) + 4$
 $0 + 4$
 4

c) As the x , input increases by 1 the output decreases by 2

Graph of $y = -2x + 4$

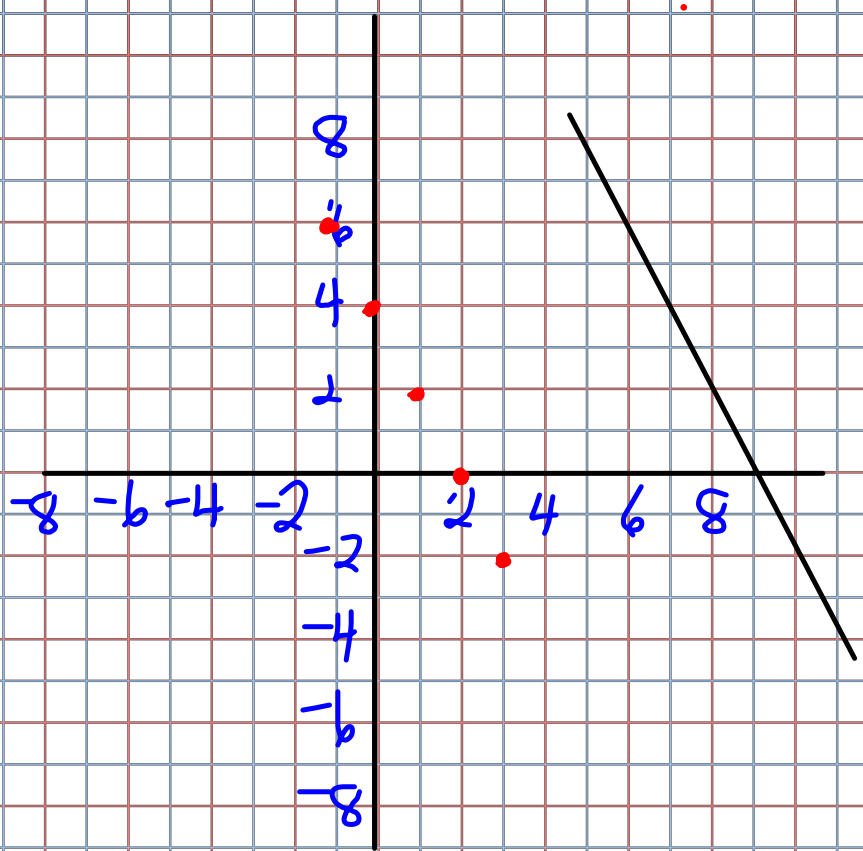


Straight line of dots

Predictions go over one block down 2 blocks

$$y = -2x + 4$$

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



Discrete vs. Continuous

For word problems

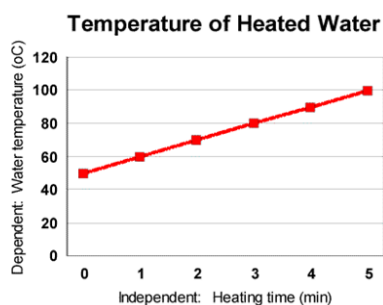
Discrete means you do not connect the dots (since you can not have part of your x variable)

ex) Graphing how many people attended a dance. (Can't have half a person)

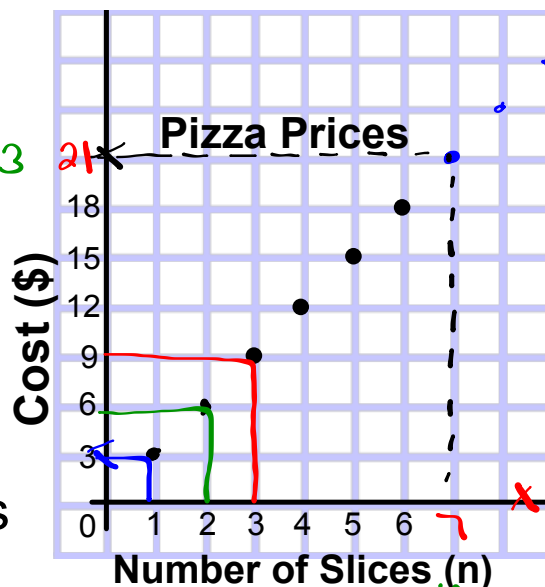
Continuous means you connect the dots (since you can not have part of your x variable)

ex 1) Graphing how many hours. (Can have half a hour)

ex 2)



- Describe the patterns on the graph. *As number of slices of pizza increase by 1, cost increases by 3*
- What is the cost of one slice of pizza? *3 (read off graph)*
- What is the relationship between the number of slices and the cost? $C = 3n$



- Make a table of values from the graph.
- If 7 slices of pizza are purchased, what is the cost?

<i>Slice of pizza</i> input	<i>Cost (\$)</i> output
1	3
2	6
3	9
4	12
5	15
6	18

Handwritten notes: Red arrows point from 3 to 6 (+3), 6 to 9 (+3), 9 to 12 (+3). A blue arrow points from 1 to 2.

Extend graph

Cost \$21 for 7 Slices