March 11, 2019

Chapter 4
Linear Relations

Warm-Up

What you already know....

Find the value of P when n=1

[BEDMAS]

A. P= 2n

$P = 2(1)$

$P = 2$

B. P=2n-2

$P = 2(1) - 2$

$P = 2 - 2$

$P = 0$

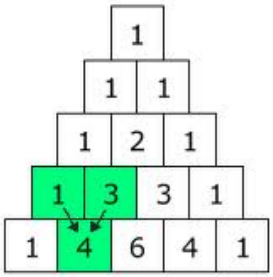
C. P= 4n +6

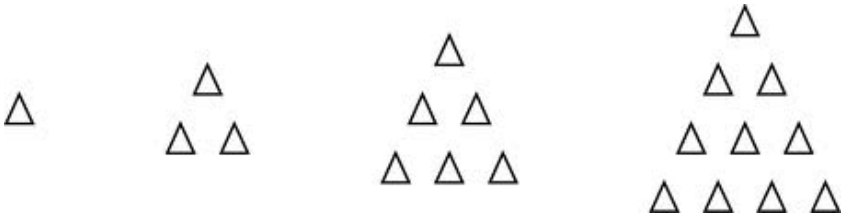
$P = 4(1) + 6$

$P = 4 + 6$

$P = 10$

Let's Explore Patterns...





DRAW!!!

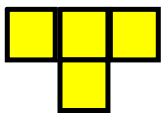


Figure 1

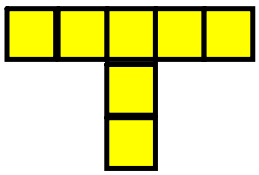


Figure 2

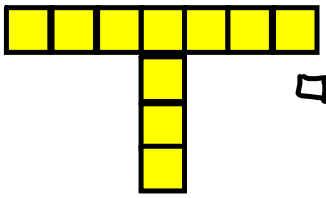


Figure 3

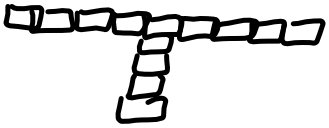


Figure 4????

Figure #(f)	# of Blocks(b)
1	4
2	7
3	10
4	13
100	301

+3 +3 +3

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

$b = 3f + 1$

If f= 100 how many blocks?

$b = 3f + 1$

$b = 3(100) + 1$

$b = 301$

Linear relation

- When graphed will be a straight line.
- A constant change in one quantity produces a constant change in the related quantity.

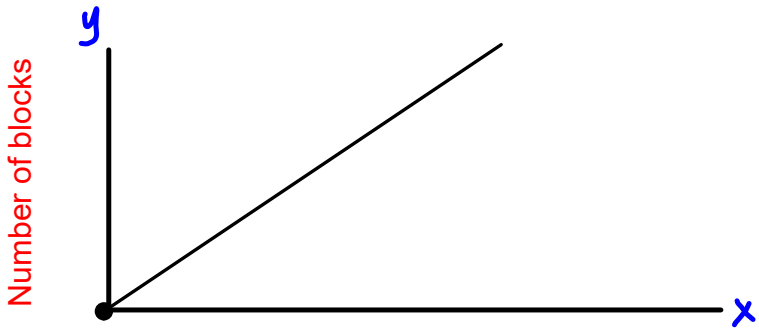
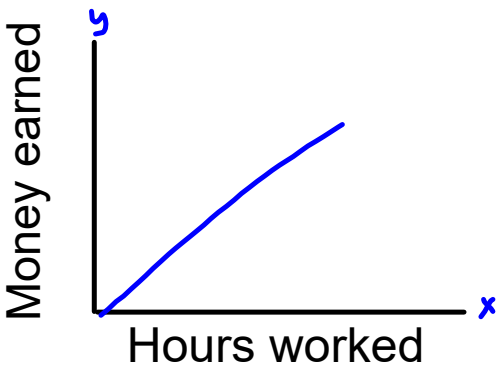
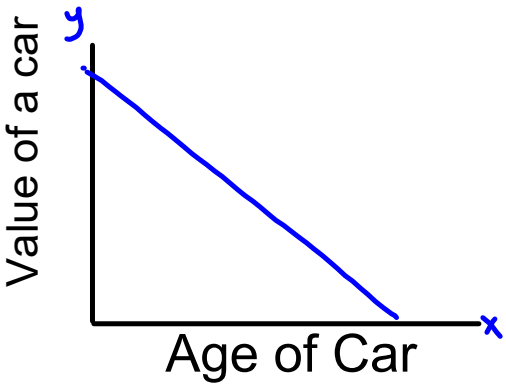


figure number



As hours worked increases the money earned increases

Positive Relationship



As the age of the car increases the value of the car decreases

Negative Relationship

Patterns in a Table of Values

In a table of values, suppose the numbers in the *first column increase by the same amount.*

- If the differences between consecutive numbers in the second column are constant, the relationship is ***LINEAR***.

x	y	
0	5	+5
1	10	+5
2	15	+5
3	20	

1) Write the equation

$y = 5x + 5$

2) Describe the relationship.

As x increases by 1, y increases by 5.

Figure # (f)	# Circles (c)
1	1
2	3
3	5
4	7
10	19
f	

1. **Write an equation that relates the number of circles, c, to the figure number, f.**

$c = 2f - 1$

2. Describe the relationship.

As f increases by 1, c increases by 2

3. How many circles in figure #10?

$c = 2f - 1$
$c = 2(10) - 1$
$c = 20 - 1$
$c = 19$

4. If you have 51 circles what figure number are you at?

$c = 2f - 1$
$51 = 2f - 1$
$2f - 1 = 51$
$2f + 1 + 1 = 51 + 1$
$\frac{2f}{2} = \frac{52}{2}$
$f = 26$

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#4. Show work

a) $P = 2n$

$P = 2(1)$

$P = 2$

#5. Show work

a) $A = 3n + 1$

$A = 3(2) + 1$

$A = 6 + 1$

$A = 7$

#7. Copy table

#8. Make a table

size	# squares

#9. Copy Table

Page 487 Answers!