

# 4.1 Linear Relations-Patterns

Friday, January 15, 2016 12:16 PM

## Math 9

### 4.1 Writing Equations to Describe Patterns

#### Notes

#### Name \_\_\_\_\_

What word is inside the word 'linear'? So what may a linear relation be? Can you think of a real world example of a linear relation?

#### Warmup:

Do the 'Investigate' on p.154. Can you describe the pattern:

a) in words *every table added, you add 2 people.*

b) a table

c) an equation where  $t$  = number of tables &  $p$  = number of people

$$p = 2t + 2$$

d) How many people at 25 tables?

$$p = 2(25) + 2 = 52 \text{ people.}$$

Tables	People
1	4
2	6
3	8
4	10
5	12

\*Together, read through 'Connect' on p.155&156 and make any notes you think are important.

#### Ex1

You go to the store to buy peanut butter.

a) Make notes on or around the table.

b) Write an equation that relates the cost to the number of jars of peanut butter.

c) What is the cost of 18 jars?

	$x$	$y$	
	Jars	Cost (\$)	
$+1$	0	0	$+5$
$+1$	1	5	$+5$
$+1$	2	10	$+5$
	3	15	$+5$
	4	20	$+5$

*As the jars go up by 1, the cost goes up by 5.*

b.) let  $j$  = jars

let  $C$  = cost

$$C = 5j$$

$$\begin{aligned} \text{c.) } C &= 5(18) \\ &= 90 \end{aligned}$$

*The cost of 18 jars is \$90*

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Ex2

Find the equation using the pattern in the table *YOU TRY.*

m	n
0	1
1	3
2	5
3	7

*Handwritten annotations:* Brackets on the left indicate a change of +1 between rows. Brackets on the right indicate a change of +2 between rows.

*As m goes up 1, n goes up 2.*

$$n = 2m + 1$$

Ex3

Find the equation using the pattern in the table

a	b
3	-1
6	0
9	1
12	2
<del>15</del>	<del>3</del>

*Handwritten annotations:* Brackets on the left indicate a change of +3 between rows. Brackets on the right indicate a change of +1 between rows.

$$b = \frac{a}{3} - 2$$

$$b = \frac{26}{3} - 2 = 6.\bar{6}$$

If a = 26, what is b?

Ex4

Empress Cabs charges \$3.75 plus \$1.25 per km.

a) if d = number of km, write an equation for the cost of Empress Cabs.

b) What is the fare for a 19 km ride?

d (km)	C (cost)
0	3.75
1	5.00
2	6.25
3	7.50

*Handwritten annotations:* Brackets on the right indicate a change of +1.25 between rows.

$$a) C = 1.25d + 3.75$$

$$b) C = 1.25(19) + 3.75 \\ = 23.75 + 3.75 \\ = 27.50$$

*your fare is \$27.50*

Math 9

assignment. p. 159 #5, 7-10, 11a, 12, 17

4.1 Writing Equations to Describe Patterns

Notes

\* Feb 1 - Mid year exam. \*

Name \_\_\_\_\_

ch. 1-3, 5

**Reflection:** What is the biggest challenge for you in this section and how do you think you can improve upon it?