

MARCH 14, 2019

UNIT 6: LINEAR RELATIONS

4.2: LINEAR RELATIONS

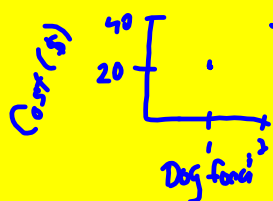
K. SEARS  
MATH 9



WHAT'S THE POINT OF TODAY'S LESSON?

We will begin working on the Math 9 Specific Curriculum Outcome (SCO) "Patterns and Relations 2" OR "PR2" which states:

"Graph linear relations, analyze the graph and interpolate or extrapolate to solve problems."



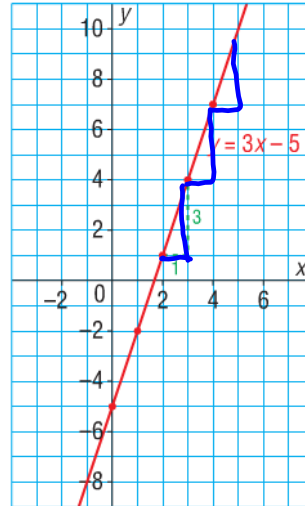
How much does 1 bag cost? \$20  
interpolate

How much does 3 bags cost? \$60  
extrapolate

Please look at the example on page 166 of *MMS9*.

$$y = 3x - 5$$

	$x$	$y$	
	0	-5	
+1	1	-2	+3
+1	2	1	+3
+1	3	4	+3
+1	4	7	+3

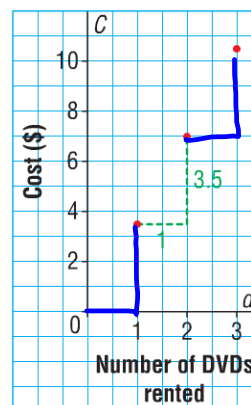


Every time  $x$  increases by 1,  $y$  increases by 3.

Please look at "Example 1" on page 167 of *MMS9* (graphing a linear relation from a table of values):

	Number of DVDs Rented, $d$	Cost, $C$ (\$)	
	1	3.50	
+1	2	7.00	+3.50
+1	3	10.50	+3.50
+1	4	14.00	+3.50
+1	5	17.50	+3.50

Cost to Rent DVDs



$$C = 3.50d$$

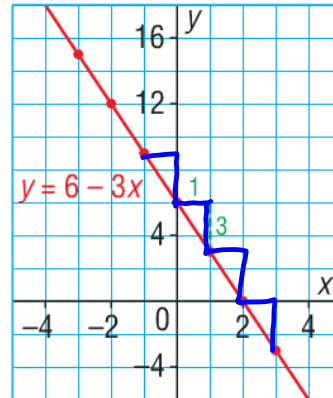
For every 1 increase in the number of DVDs, the cost goes up \$3.50.

Please look at "Example 2" on pages 167 and 168 of *MMS9* (graphing a linear relation from an equation):

$y = 6 - 3x$

x	y
-3	15
-2	12
-1	9
0	6
1	3
2	0
3	-3

Handwritten annotations:  $+1$  in the x-column and  $-3$  in the y-column with arrows indicating the change between rows.



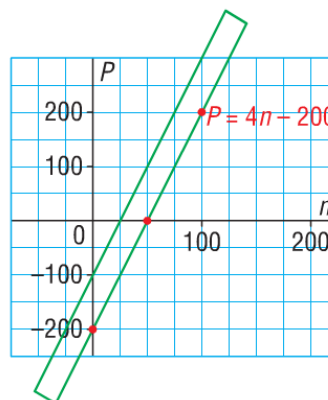
As x increases by 1, y decreases by 3.

Please look at "Example 3" on page 169 of *MMS9* (solving problems using a linear relation):

Equation:  $P = 4n - 200$   
 (P = Profit; n = number of students)

n	P
0	-200
50	0
100	200

Handwritten annotations:  $+50$  in the n-column and  $+200$  in the P-column with arrows indicating the change between rows.

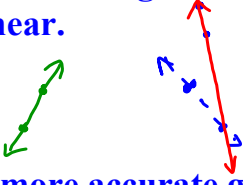


$\frac{200}{50} = \frac{4}{1} \quad P = 4n - 200$

As the number of students increases by 50, then the profit increases by \$200.

**PLEASE TURN TO PAGE 170 IN MMS9.**

*"Discuss the Ideas":*

1. a) Its points lie on a straight line.  
b) If a constant change in one quantity produces a constant change in the other, the relation is linear.
2. a)   
b) This produces a more accurate graph which is easier to extend when necessary.
3. If the data represented in the graph is continuous, which means fractions and decimals are allowed, we connect the points; if the data represented in the graph is discrete, which means fractions and decimals are NOT allowed, we do NOT connect the points.

Finish...

'Graphing Ordered Pairs' worksheet

then start p. 170

## CONCEPT REINFORCEMENT:

### *MMS9:*

**PAGE 170: ALL! (#4 and #5)**

**PAGE 171: ALL! (#6 to #11)**

**PAGE 172: ALL! (#12 to #15)**

**PAGE 173: #16**

**PAGE 181: #3 TO #5**

**PAGE 201: #4 TO #6**