Name _____ Period _____ Date _____

6-7 EXTRA PROBLEMS
LESSON 1

6RP3a, 6EE2a, 6EE6, 6EE9

1. In the table below, the *x*-value is considered the input value and the *y*-value is the output value.

   a. Complete the table.

x	1	2	3	4	5	6
y	5	6	7	8	9	10

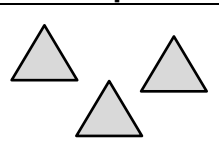
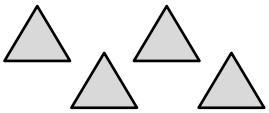
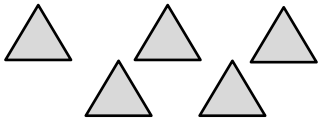
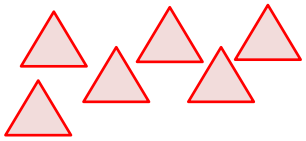
   b. Complete the rate of change statement.
   For every increase of *x* by 1, *y* increases by __1__.

   c. Complete the input-output rule.
   Add __4__ to the *x*-value to get the corresponding *y*-value.

   d. Write an equation to represent pattern in the table. $y = x + 4$

6RP3a, 6EE2a, 6EE6, 6EE9

2.

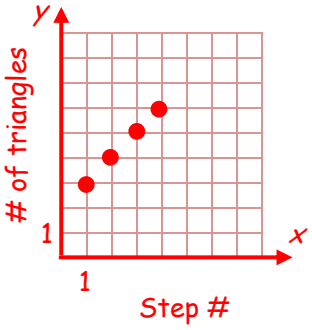
Step 1	Step 2	Step 3	Step 4
			

   a. Draw step 4.

   b. Complete the table.

Step # (*x*)	1	2	3	4	5
# of triangles (*y*)	3	4	5	6	7

   c. Create a graph with appropriate labels.



   d. Write an input-output rule. $y = x + 2$

   e. Which variable represents the input values (independent variable)? step #

   f. Which variable represents the output values (dependent variable)? # of triangles

Name _____ Period _____ Date _____

6-7 EXTRA PROBLEMS
LESSON 1
Continued

6RP3a, 6EE2a, 6EE6, 6EE9

3. In the table below, the *x*-value is considered the input value and the *y*-value is the output value.

   a. Complete the table.

x	1	2	3	4	5	6
y	6	12	18	24	30	36

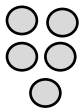
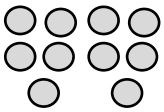
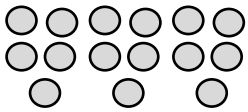
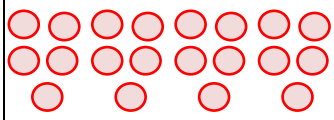
   b. Complete the rate of change statement.
   For every increase of *x* by 1, *y* increases by __6__.

   c. Complete the input-output rule.
   Multiply the *x*-value by __6__ to get the corresponding *y*-value.

   d. Write an input-output rule. $y = 6x$

6RP3a, 6EE2ab, 6EE6, 6EE9

4.

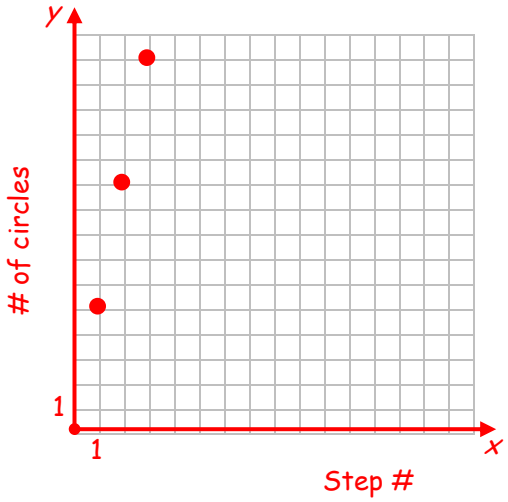
Step 1	Step 2	Step 3	Step 4
			

   a. Draw step 4.

   b. Complete the table.

Step # (*x*)	1	2	3	4	5
# of circles (*y*)	5	10	15	20	25

   c. Create a graph with appropriate labels.



   d. Write an input-output rule. $y = 5x$

   e. Find *y* if *x* = 100. 500

   f. Find *y* if *x* = 1,000. 5,000

   g. Find *x* if *y* = 100. 20

   h. Find *x* if *y* = 1,000. 200

Name _____ Period _____ Date _____

6-7 EXTRA PROBLEMS
LESSON 2

6RP3ab, 6NS3, 6EE2ab, 6EE6, 6EE9

1. A grocery store sells vitamin water in different ways, shown below.

Single Bottle: $2.00	6-pack: $9.00	12-pack: $14.40

a. Complete a table for each.

Single Bottle	
Quantity (*x*)	**Cost in $ (*y*)**
1	2
2	4
3	6
4	8

6-pack	
Quantity (*x*)	**Cost in $ (*y*)**
1	9
2	18
3	27
4	36

12-pack	
Quantity (*x*)	**Cost in $ (*y*)**
1	14.4
2	28.8
3	43.2
4	57.6

b. Write an input-output rule for each table.
Single Bottle: $y = 2x$; 6-pack: $y = 9x$; 12-pack: $y = 14.4x$

c. Find the cost per 1 bottle for each.
Single Bottle: $2; 6-pack: $1.50; 12-pack: $1.20

d. Which water has the lowest unit price? The highest?
12-pack is the lowest and single bottle is the highest

e. You need exactly 35 bottles of vitamin water and don't want to buy more than that. You want to pay the least amount for vitamin water possible without having extra bottles. List the best way to buy 35 bottles. Show your work including the numbers of each and total price.
Two 12-packs + one 6-pack + five single bottles → $47.80

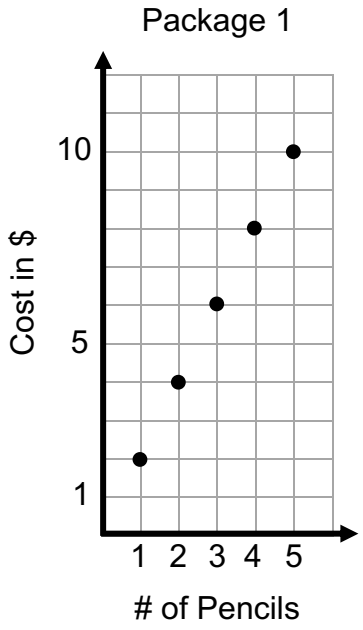
f. You decide that you don't care if you have extra bottles of water. List the cheapest method to buy at least 31 bottles of vitamin water.
Three 12-packs → $43.20

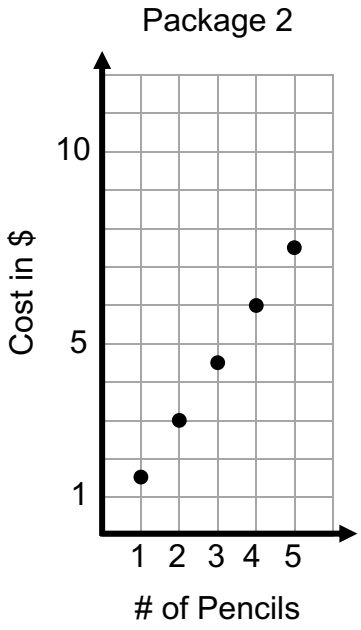
Name _____ Period _____ Date _____

6-7 EXTRA PROBLEMS
LESSON 2
Continued

6RP3ab, 6NS3, 6EE2a, 6EE6, 6EE9

2. As Eva prepares for a new school year, she decides to graph different pencil prices to analyze which is the better buy.





a. Using the data from the graphs, complete the tables.

Package 1	
Quantity (x)	**Cost in $ (y)**
1	2.00
2	4.00
3	6.00
10	20.00
50	100.00

Package 2	
Quantity (x)	**Cost in $ (y)**
1	1.50
2	3.00
3	4.50
10	15.00
50	75.00

b. Write a rule for each. $y = 2x$; $y = 1.50x$

c. Which graph illustrates a greater cost increase per each additional pencil? How can you see this when comparing the graphs?
Package 1 because there is a greater/faster increase in cost per quantity; the graph is steeper.

Name _____ Period _____ Date _____

6-7 EXTRA PROBLEMS
LESSON 3

6RP3a, 6EE2ab, 6EE6, 6EE9

1. Harvest Middle School has an 8th grade dance at the end of the year to raise funds for various programs. They charge $8 per ticket.

   a. Complete the following tables.

Table 1	
# of tickets sold (*t*)	**Money earned in $ (*m*)**
1	8
2	16
5	40
12	96
50	400

Table 2	
Money earned in $ (*m*)	**# of tickets sold (*t*)**
8	1
16	2
32	4
80	10
200	25

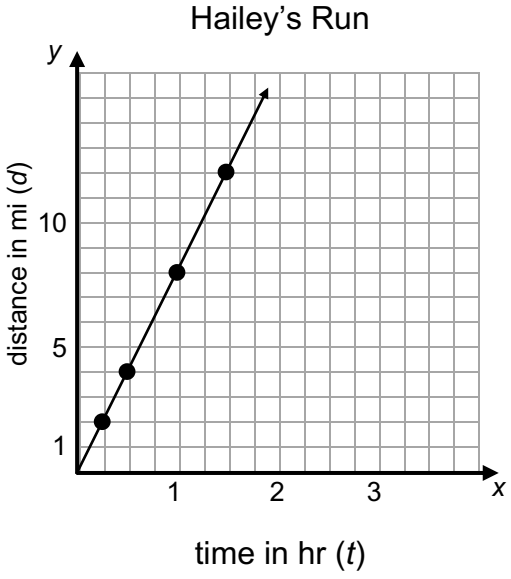
   b. Write two different equations that relate *t* and *m*: $m =$ $8t$; $t =$ $\frac{m}{8}$ or $\frac{1}{8}m$

   c. How much will 2,000 tickets cost? $16,000

   d. The school wants to earn $3,000 from ticket sales. How many tickets do they need to sell? 375 tickets

6RP3ab, 6EE2ab, 6EE6, 6EE9

2. Hailey is training for a half-marathon. The graph at the right shows her run today. She ran at a constant rate.



   a. How many miles did she run in 1 hour?
   8 miles

   b. How far did she run in 1.5 hours?
   12 miles

   c. How long did it take her to run 4 miles?
   0.5 hours

   d. Write an equation for distance in terms of time.
   $d = 8t$

   e. At this rate, how many hours would it take Hailey to run 15 miles?
   1.875 hours or $1\frac{7}{8}$ hours or 1 hour $52\frac{1}{2}$ min

Name _____ Period _____ Date _____

6-7 EXTRA PROBLEMS
LESSON 3
Continued

6RP3a, 6NS3, 6EE2ab, 6EE6, 6EE9

3. Shivon swims 400 meters in 8 minutes at a constant rate.

   Willow swims 300 meters in 12 minutes at a constant rate.

   a. Complete the table for Shivon.

Time in min (*t*)	8	4	1	0.5	0.25	0.75
Distance in meters (*d*)	400	200	50	25	12.5	37.5

   b. How far does Shivon swim in 15 minutes? 750 m

   c. Write an equation that relates Shivon's distance and time. $d = 50t$

   d. Copy and complete the table for Willow.

Time in min (*t*)	12	6	1	0.5	0.25	0.75
Distance in meters (*d*)	300	150	25	12.5	6.25	18.75

   e. How far does Willow swim in 45 minutes? 1,125 m

   f. Write an equation that relates Willow's distance and time. $d = 25t$

   g. Who is swimming at a faster rate, Shivon or Willow? Explain.
   Shivon is swimming 50 meters per minute which is faster than Willow at 25 meters per minute

6RP3b

4. Kendall rode a bike 24 miles in 180 minutes at a constant rate.

   a. How far did she ride in 15 minutes? 2 miles

   b. How long did it take her to ride 6 miles? 45 minutes

   c. How fast did she ride in miles per hour? 8 miles/hour

   d. What is her pace in minutes per mile? 7.5 minutes/mile