

Manchester High School

Summer Review Packet for students enrolled in

GRADE 9

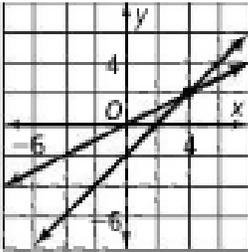
Students should complete the problems in the review packet and bring to their
9TH GRADE MATH class at the start of the 2017-2018 school-year.

Solve each of the following:

1. Sophia had \$50 she put into a savings account. If she saves \$15 per week for one year, how much will she have saved altogether?

2. Give the domain of the relation:
 $\{(2, -3), (-1, 0), (0,4), (-1,5),(4,2)\}$

3. Name the ordered pair that is the solution of the system of equations graphed below.



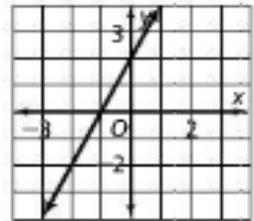
4. Write an expression which represents the phrase
 “four subtracted from the quotient of x and 3”.

5. Write an equation which represents the phrase
 “six more than twice a number is 72”

6. What is 23.7×10^4 written in standard notation?

7. Juan and his family went on vacation. They ate dinner at a restaurant one evening and the total for the meal came to \$55.73. If sales tax 6.35 % what is the total cost of the meal, not including tip?

8. Complete the table of values for the points that lie on the graph of the line:



x	-3	-2	0	1
y				

Solve each of the following:

<p>9. A jewelry store marks up the price of a topaz ring 215%. The store paid \$70 for the ring. For how much is the store selling the ring?</p>	<p>10. What is the solution of $-3p + 4 < 22$?</p>
<p>11. Cathy ran for 30 min at a rate of 5.5 mi/h. Then she ran for 15 min at a rate of 6 mi/h. How many miles did she run in all?</p>	<p>12. A 6 ft-tall man casts a shadow that is 9 ft long. At the same time, a tree nearby casts a 48 ft shadow. How tall is the tree?</p>
<p>13. There are $3\frac{3}{4}$ c of flour, $1\frac{1}{2}$ c of sugar, $\frac{2}{3}$ c of brown sugar, and $\frac{1}{4}$ c of oil in a cake mix. How many cups of ingredients are there in all?</p>	<p>14. The formula $F = \frac{9}{5}C + 32$ converts temperatures in degrees Celsius C to temperatures in degrees Fahrenheit F. What is 35° C in degrees Fahrenheit?</p>
<p>15. A bowling ball is traveling at 15 mi/h when it hits the pins. How fast is the bowling ball traveling in feet per second? (hint: 1 mi = 5280 ft)</p>	<p>16. Your grades on four exams are 78, 85, 97, and 92. What grade do you need on the next exam to have an average of 90 on the five exams?</p>

Solve each of the following:

<p>17. The number of points scored by a basketball team during the first 8 games of the season are 65, 58, 72, 74, 82, 67, 75, 71</p> <p>How much will their average game score increase by if the team scores 93 points in the next game?</p>	<p>18. The Martins keep goats and chickens on their farm. If there are 23 animals with a total of 74 legs, how many of each type of animal are there?</p>
<p>19. Solve for y: $2x + 3y = 12$</p>	<p>20. Mrs. Ellsworth wants to put a fence around her square garden. The garden has an area of 25 square feet. How much fencing material is needed to fence in the garden?</p>

Evaluate each of the following without a calculator:

<p>21.) $40 - 6^2 \div 4 \cdot 3$</p>	<p>22.) $6(4 - 2)^2 - 3(8 - 2)$</p>
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Evaluate the following expressions, without a calculator, given the values:

$$a = -\frac{1}{2}, b = 4, c = 5, d = -3$$

<p>23.) $\frac{ab}{c^2 - d}$</p>	<p>24.) $6(2a + 3b) + 5(4a - 3b)$</p>
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Simplify each of the following:

<p>25.) $3x - 5y + 8 - 2x + 7y$</p>	<p>26.) $6(2x - 3) - 2(5x + 8)$</p>
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Solve each of the following equations:

27.) $-14 = h - 5$

28.) $d - (-3) = 8$

29.) $5x + 4 = 22$

30.) $5x + 3x - 6 = 26$

31.) $5x + 3 = 2x + 15$

32.) $5(2x - 6) = 7x - 3$

33.) $\frac{9x - 3}{2} = \frac{7x + 5}{4}$

34.) $\frac{3x - 2}{3} = \frac{4}{5}$

PROBLEM SOLVING:

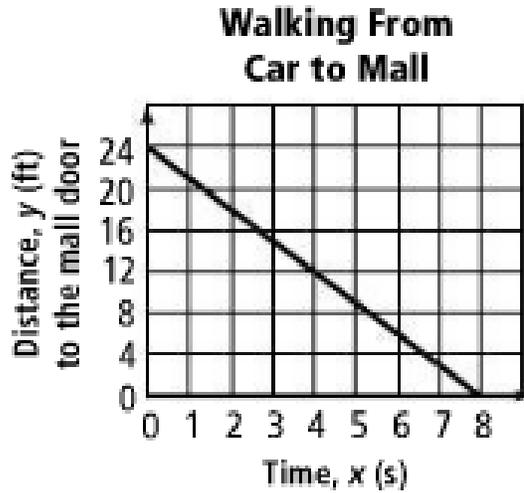
1. Santana and Garrett started writing blogs at the same time. The number of subscribers S to Santana’s blog can be modeled by the function $S = 12m + 24$, where m is the number of months since she started the blog. Data for the number of subscribers to Garrett’s blog are shown in the table below:

Garrett’s Blog

Number of Months	Number of Subscribers
0	84
1	90
2	96
3	102
4	108

- a. Assume the growth in each blog’s subscribers continues to follow the established pattern. Will Santana and Garrett ever have the same number of subscribers? If so, how many?
- b. Eventually Santana will have more subscribers than Garrett. When will this occur? Write a mathematical argument to explain how you know.

2. The graph below shows the time it takes Sam to get from his car to the mall door.



- a. How far was Sam's car parked from the door of the mall? _____
- b. How long did it take Sam to reach the door of the mall? _____
- c. How far from the door was Sam at 4 seconds? _____
- d. How fast was Sam walking in ft/sec? _____

3. Margarita parked 16 ft from the door and walked at a rate of 2 ft/sec.

- a. Draw the graph that shows the time that it takes Margarita to get from her car to the mall door on the graph above.
- b. If Margarita and Sam got out of their cars at the same time, who arrived at the mall door first?
Explain your response.

4. You are going on vacation and need to rent a car for the week and would like to use the Rent-A-Roo company. Two of your friends have used this company for their vacations and gave you the following information:
- Sam rented a car for a week, drove 580 miles, and paid \$327.
 - Eliza rented a car for a week, drove 305 miles, and paid \$217.
 - Both friends mentioned that there was an initial rental fee for the car and an additional rate per mile that the car was driven.
 - Let x represent the number of miles the car is driven
 - Let y represent the total cost of the rental car.

a.) Use the values given to create two ordered pairs (x,y) for the line.

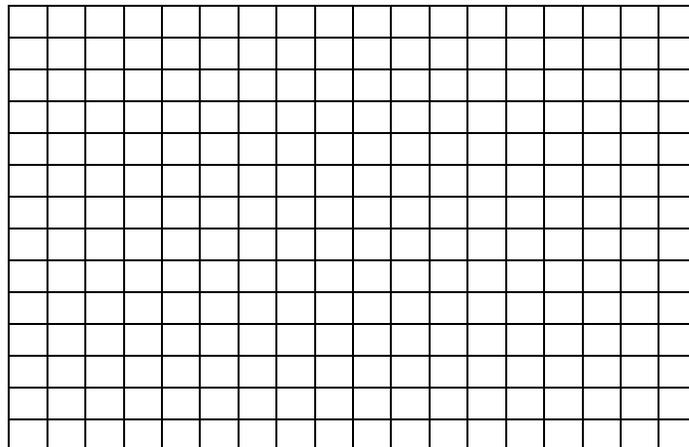
X	Y	Ordered Pair
		(,)
		(,)

b.) Use these ordered pairs to find the slope, $m = \frac{y_2 - y_1}{x_2 - x_1}$, and the equation ($y = mx + b$)

$m =$ _____

Equation _____

c.) Graph the equation. Use appropriate scales and labels.



Now answer these questions:

What is the initial fee that you must pay when renting a car from the Rent-A-Roo company?

What is the rate charged per mile that the rental car is driven?

If you wanted to rent a car for a trip to Washington DC (400 miles away), what would the cost be?

Sabrina rented a car last week and paid a total of \$209. How many miles did she drive?

Select a travel destination that you may drive to get to. Find the total mileage of a round trip and estimate the cost of a rental car for the trip.
