Name _____

Equations and Functions Test Review

1. Expand $2(-6x+7)$?

2. Simplify the following expressions:

$3a + 2b + a + 3b$

$5x + 3y - x + y$

$5r + 8 - 2r + 2$

$4x - 5y - 2x + 4y$

3. Simplify the following expressions:

$5(3 + 2k) + 3(2 + 3k)$

$5(3g + 4) - 3(2g + 5)$

$4(3 + 2f) + 2(5 - 3f)$

$4(4e + 3) - 2(5e - 4)$

$-8y(y + 2) - y(y - 7)$

4. a) $2y + 6 = 18$ b) $\frac{x + 5}{4} = 10$

c) $2x + 3 = x + 5$ d) $4a - 3 = 3a + 4$

e) $2(d + 3) = d + 12$

5. Solve the following for x:

(a) $4-(x+3) = 8-5(2x-3)$

(b) $x-2(3-x) = 2x+3(1-x)$

6. Kimi and Jordan are both working during the summer to earn money in addition to their weekly allowances, and they are saving all their money. Kimi earns $9 an hour at her job, and her allowance is $8 per week. Jordan earns $7.50 an hour, and his allowance is $16 per week.

(a) Complete the table below:

Hrs worked in a week	0	1	2	3	4	5	6	7
Kimi's wkly savings								
Jordan's wkly savings								

(b) Write an equation that can be used to calculate the total of Kimi's allowance and job earnings at the end of one week given the number of hours she works.

(c) Write an equation that can be used to calculate the total of Jordan's allowance and job earnings at the end of one week given the number of hours he works.

(d) Sketch the graphs of your two equations on a pair of axes.

(e) Jordan wonders who will save more money in one week if they both work the same number of hours. Write an answer for him.

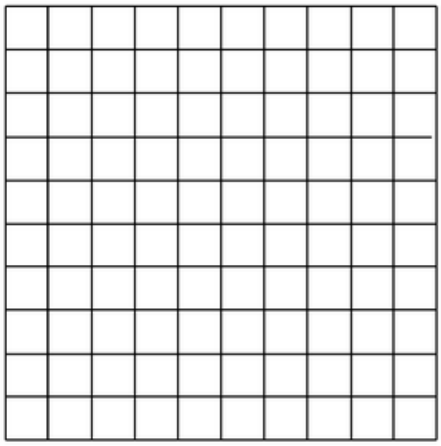
7. You work for a video streaming company that has two monthly plans to choose from. 1: A flat rate of $7 per month plus $2.50 per video viewed. 2: $4 per video viewed.

(a) What type of functions model this situation? Explain how you know.

(b) Define variables that make sense in the context, and then write an equation for each plan with cost as a function of videos viewed.

(c) How much would 3 videos in a month cost for each plan? 5 videos? Create a data table and graph to help you find out.

# of videos	$Cost_1(\$)$	$Cost_2(\$)$
1		
2		
3		
4		
5		



(d) Compare the two plans and explain what advice you would give to a customer trying to decide which plan is best for them, based on their viewing habits.

8. Which of these tables of values satisfy the equation y = 2x + 2? Explain how you checked.

x	0	1	2
y	4	4	5

A

x	1	2	3
y	4	6	8

B

x	-2	-1	1
y	-5	-2	4

C

x	-2	-1	1
y	-2	0	4

D

9. Rihanna and Cee Lo Green are renting a car in Shanghai. The rental company posts its rates in the table below:

Days	Cost
1	$30
2	$40
3	$50
4	$60

Rihanna and Cee Lo Green are renting for 7 days, and the clerk says that it will cost $85. Rihanna thinks the clerk is trying to cheat them. Cee Lo Green insists she is not. Write an equation and sketch a graph to figure out who is right.

10. Determine which of the following equations are linear:

$y = x^2 + 5x + 6$

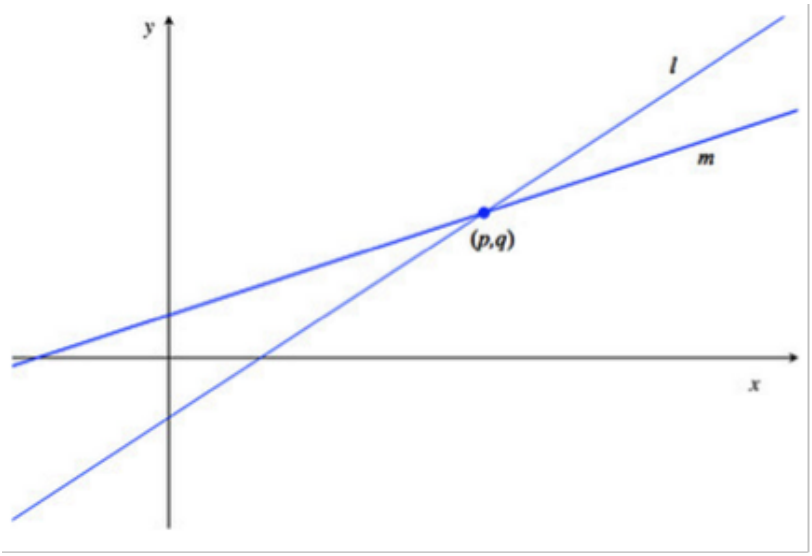
$y = x^3$

$y = \frac{1}{x}$

$y = x(2 + x)$ $y = 7x + 6$

$y = \frac{x}{2}$

11. The figure below shows the lines l and m described by the equations 4x-y=c and y=2x+d respectively, for some constants c and d. They intersect at the point (p,q).



(a) How can you interpret c and d in terms of the graphs of the equations above?

(b) Imagine you place the tip of your pencil at point (p,q) and trace line l out to the point with x-coordinate p+2. Imagine I do the same on line m. How much greater would the y-coordinate of your ending point be than mine?