

Name: Key

Period: _____

Fall End of Semester Review
Additional Pre-AP Problems

Unit 1:

1) Write an equivalent expression for $\frac{8x^2y^5z^1}{24xy^8z^{-1}} = \frac{x}{3y^3}$

2) Simplify $\frac{18xy^{-5}z^0}{6xy^{-1}z^3} = \frac{3}{y^4z^3}$ $3y^{-4}z^{-3}$
 $-5 - (-1) = -4$

Unit 2:

- 3) Determine whether each table of x- and y-values represents a function. Explain your answers.

a. *Non-Function*

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

x-value of 4 repeats

b. *Function*

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

No repeating Domain values

c. *Non-Function*

x	y
2	5
3	12
4	7
6	3
9	12
7	8
9	11

x-value of 9 repeats

- 4) Brandon is preparing to compete in the district track and field competition. He has decided to track his improvement by recording the time and distance he runs each Monday. He runs between 45 and 65 minutes each Monday. Brandon runs at a rate of 0.08 miles per minute. Determine the possible range of the number of miles, m , that Brandon runs on any given Monday.

min: $45 \times 0.08 = 3.6$

max: $65 \times 0.08 = 5.2$

$$3.6 \leq m \leq 5.2$$

-no repeating x-values

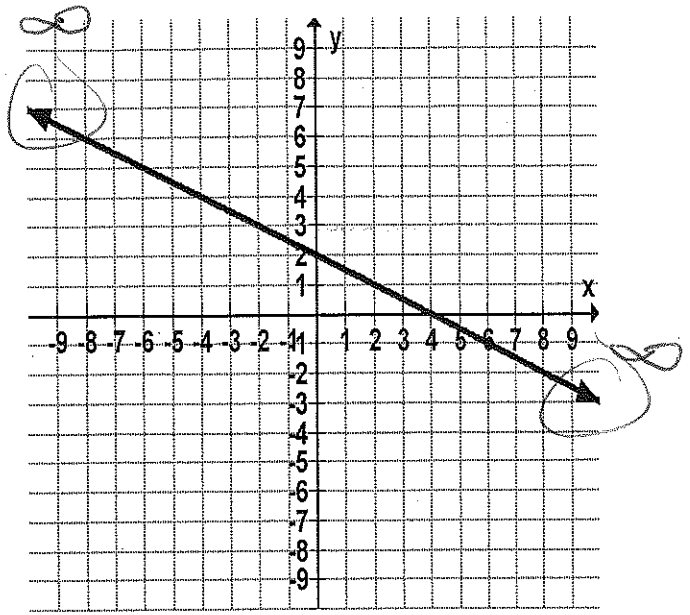
5) What is the domain and range of the function graphed below?

Domain: All real numbers
 \mathbb{R}

Range: All real numbers
 \mathbb{R}

What is the parent function of this graph?

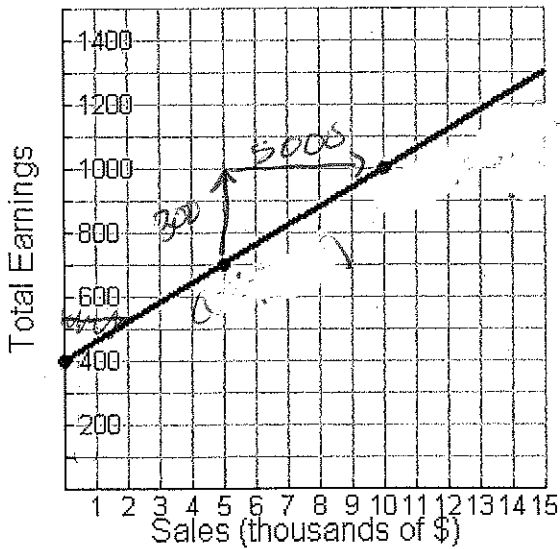
$y = x$
 the linear parent function



Unit 3:

6) The graph below represents the relationship between the number of sales in thousands of dollars and a salesperson's total earnings. Based on the graph, how much would a person have to ~~sale~~ ^{sell} to earn \$2,000?

Salesperson's Total Earnings



$m = \frac{300}{5000} = 0.06$
 $b = 400$
 $y = 0.06x + 400$

$2000 = 0.06x + 400$
 -400

$\frac{1600}{0.06} = \frac{0.06x}{0.06}$

$x = 26666\frac{2}{3}$

$\$26,667$

7) Given the equation $5x - 2y = 6$, what is the value of $15x$? (times 3)

Scale up (times 3)
 $3(5x - 2y) = 3(6)$
 $15x - 6y = 18$
 $15x = 6y + 18$

8) Given the equation $x + 3y = 5$, what is the value of $6y$? (times 2)

$2(x + 3y) = 2(5)$
 $2x + 6y = 10$
 $6y = -2x + 10$

Unit 4:

9) Robert borrowed \$6,000 from his brother to purchase a used car and agreed to pay the loan back at a rate of \$300 per month. Write an equation to represent the loan balance, B , for the number of months, m , it takes to pay off the loan.

DV: Balance - B
 IV: months - m

$B = 6000 - 300m$
 $B = -300m + 6000$

10) At 3 o'clock, Sharon passes mile marker 295 on Highway 35. At 6 o'clock she passes mile marker 475. Write an equation to represent the relationship between the number of miles, m , and the number of hours, h , Sharon drove.

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 $m = 60h + 115$

11) The value of my new car after 2 years was \$11,200. When the car is 6 years old, the value has dropped to \$6,100. Write an equation to represent the value of the car, v , after n number of years.

$v = -1275n + 13750$
 $a = -1275$
 $b = 13750$

12) Graph the linear parent function.

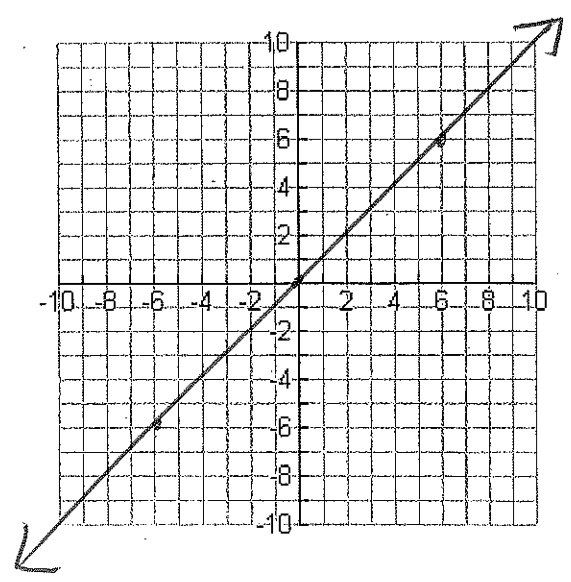
What is the equation? $y = x$

What is the slope? $m = 1$

What is the y-intercept? $(0, 0)$

What is the domain?
 All real numbers \mathbb{R}

What is the range?
 All real numbers
 \mathbb{R}



DV DV
dollars per week week

13) Jason's grandparents gave him \$1,000 for his 16th birthday. He put the money in the bank and decided to withdraw \$25 each week.

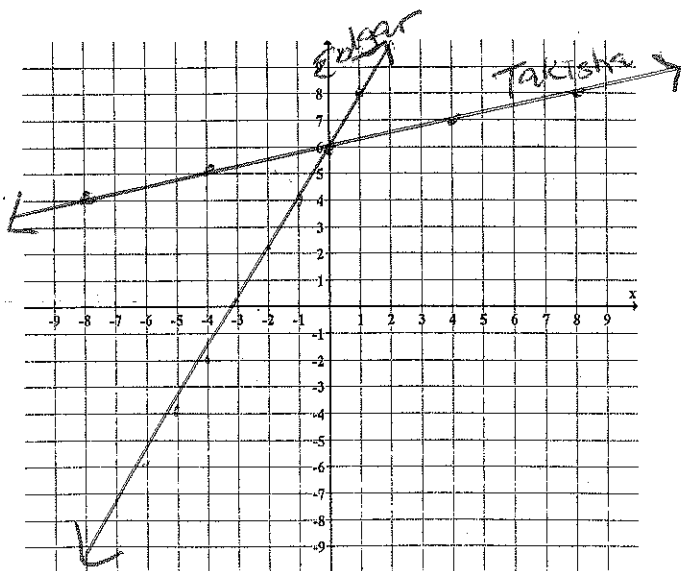
- a. Identify the independent variable. *Weeks*
- b. Identify the dependent variable. *Balance in bank*
- c. Complete the table for the above situation.

<i>Weeks</i> x	<i>Balance</i> y \$
0	1,000
1	975
2	950
10	750
15	625
20	500
n	$1000 - 25n$

d. What is the rate of change? *25 dollars per weeks*

e. Identify the y-intercept. What does it represent in this situation?
(0, 1000) He started with 1,000 in the bank.

14) Takisha graphed the equation $y = \frac{1}{4}x + 6$. Edgar decided to change the slope to 2 and graph the new line. Graph both lines and answer the following questions about Edgar's new graph compared to Takisha's graph.



a. Is Edgar's line steeper or flatter than Takisha's line?
His line is steeper than hers.

b. Did the y-intercept of Edgar's line change?
No, only the slope