Name _____ Block _____ Date _____

Midterm Review Sheet (HONORS – Fall 2018)

1.) Robert's bus ride is 5 minutes more than $\frac{3}{2}$ the length of Jessie's bus ride. Which graph represents the length of their rides?

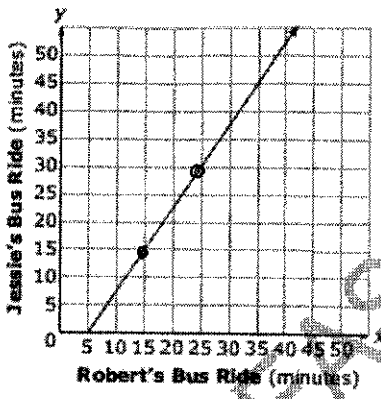
$X = \frac{3}{2}Y + 5$

$X - 5 = \frac{3}{2}Y$

$\frac{2}{3}(X-5) = \frac{2}{3}(\frac{3}{2}Y)$

$Y = \frac{2}{3}X - \frac{10}{3}$

A



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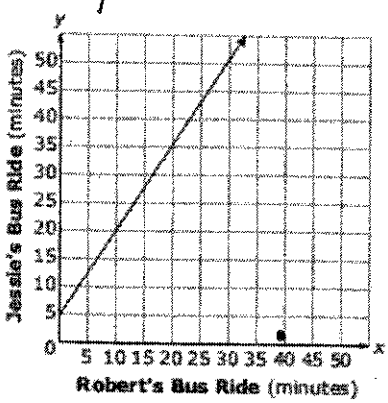

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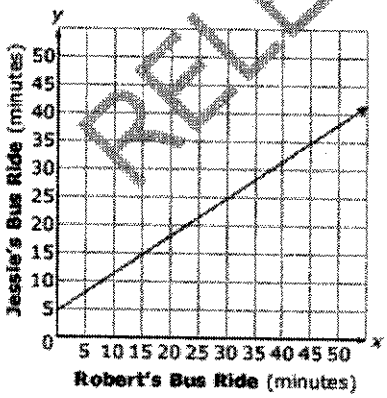

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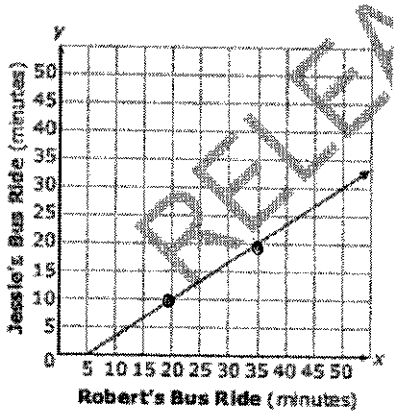
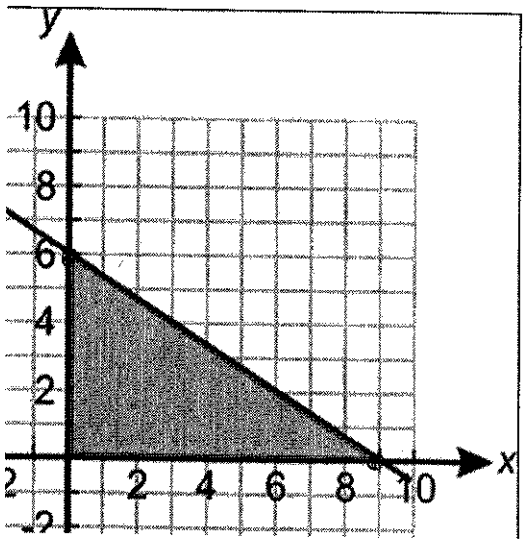


2.) What scenario could be modeled by the graph below?



$m = \frac{-6}{9} = -\frac{2}{3}$

A) The number of basketball players, y, plus ⅔ the number of football players, x, is no more than 6.

B) The number of basketball players, y, plus ⅔ the number of football players, x, is no more than 9.] WRONG y-int

C) The number of basketball players, y, minus ⅔ the number of football players, x, is no more than 6.] pos. slope

D) The number of basketball players, y, plus $\frac{3}{2}$ the number of football players, x, is no more than 6.

A) $y + \frac{2}{3}x \leq 6$

$y \leq -\frac{2}{3}x + 6$

B) $y + \frac{2}{3}x \leq 9$

$y \leq -\frac{2}{3}x - 9$

C) $y - \frac{2}{3}x \leq 6$

$y \leq \frac{2}{3}x + 6$

D) $y + \frac{3}{2}x \leq 6$

$y \leq -\frac{3}{2}x + 6$

3.) The marching band sells cases of oranges and grapefruit for a fundraiser.

- Shakira sells 5 cases of oranges and 8 cases of grapefruit for $235.
- Jeff sells 3 cases of oranges and 2 cases of grapefruit for $85.

How much would 1 case of oranges cost? **(Express your answer in dollars.cents.)**

$5x+8y=235$

$4(3x+2y=85)$

$5x+8y=235$

$(-)\ 12x+8y=340$

$-7x=-105$

$x=15.00$

$x=$ \$ for case of oranges

4.) Four times Joe's age plus 2 times Tim's age equals 50. Tim's age is also 2 less than Joe's age. How old is Joe?

$x=$ Joe's age

$y=$ Tim's age

$4x+2y=50$

$y=x-2$

$4x+2(x-2)=50$

$4x+2x-4=50$

$6x-4=50$

$6x=54$

$x=9$

Joe is 9 years old

5.) Suppose that the function $f(p) = 3p + 30$ represents the number of points you earn on a test for getting p questions correct. You earned 13 extra credit points for a project. How many questions must you answer correctly to earn an A (90 points) on the test?

$3p+30+13=90$

$3p+43=90$

$3p=47$

$p=15.7$

10 questions

6.) The volume of a cylinder can be found using the formula: $V = \Pi r^2 h$, where V is the Volume, r is the radius of the base, and h is the height. What equation finds h, given V and r? (Remember, Π is a number.)

A) $\frac{\Pi r^2}{V} = h$

B) $V\Pi r^2 = h$

C) $\frac{V\Pi}{r^2} = h$

D) $\frac{V}{\Pi r^2} = h$

7.) The table below represents the average price of a movie ticket in the given year.

Year	1987	1991	1995	1999	2003	2007	2009
Price ($)	3.91	4.21	4.35	5.06	6.03	6.88	7.50

$\frac{7.50-4.21}{2009-1991} = \frac{3.29}{18}$

To the nearest cent, what was the average rate of change of the ticket price between 1991 and 2009?

A) \$.16/year

B) \$.18/year

C) \$.23/year

D) \$3.29/year

8.) Jose compared the y-intercept of the graph of the function $f(x) = 3x - 9$ to the y-intercept of the graph of the linear function that includes the points in the table below.

What is the difference when the y-intercept of $f(x)$ is subtracted from the y-intercept of $g(x)$?

A. -11

B.) -7

C.) 2

D.) 7

$g(x)-f(x)$

$-2-(-9)$

$-2+9$

x	y
1	2
3	10
4	14
7	26

+2, +8

9.) For a certain section, Panthers season tickets cost \$70 per game for x games with a \$2,000 charge for a Personal Seat License. Courtside season tickets to the Hornets cost \$250 per game for x games with no PSL charge. What function represents the difference in cost between Panthers and Hornets season tickets?

A) $f(x) = -180x + 2000$

B) $f(x) = -180x - 2000$

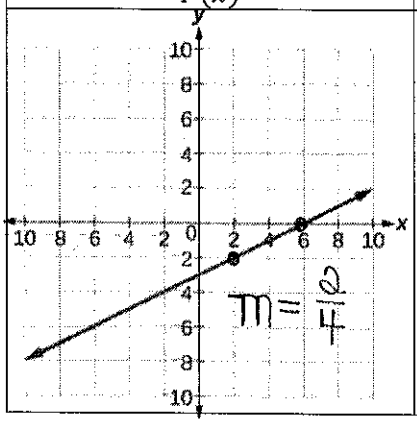
C) $f(x) = 70x - 1750$

D) $f(x) = -1820x$

$70X+2000 - 250X$

$-180X+2000$

10.) Dayana compared the slope of the following two functions:

$F(x)$	$G(x)$
	Function with *x-intercept* at 3 and *y-intercept* at −2.5.

$(3,0)(0,-2.5)$

$m = \frac{-2.5}{-3}$

$m = \frac{5}{6}$

$m = \frac{2}{4}$

What is the slope of the function with the larger slope?

A) $\frac{1}{2}$

B) $\frac{5}{6}$

C) $\frac{6}{5}$

D) 2

11.) The table below shows a car dealer's paycheck based on the number of cars she sold.

Cars Sold	Monthly Paycheck
6	\$2,500
12	\$4,000
18	\$5,500
24	\$7,000

What is the meaning of the slope of the linear model for the data?

A) The dealer gets \$2,500 for every car she sells.
B) The dealer gets \$2,500 for every 6 cars she sells.
C) The dealer gets \$1,500 for every car she sells.
D) The dealer gets \$1,500 for every 6 cars she sells.

12.) Keyshawn and Trey begin saving money each week. After x weeks, the following functions represent the amount of money they have saved:

Keyshawn: $f(x) = 5x + 36$ Trey: $g(x) = 8x + 9$

After how many weeks will they have the same amount of money?

A) 1 week B) 5 weeks

C) 9 weeks D) 13 weeks

$5X+30 = 8X+9$

$30 = 3X+9$

$27 = 3X$

$X = 9$

13.) Mariah noticed that various combinations of \$1 and \$5 bills could make \$23. Let x represent the number of \$5 bills and y represent the number of \$1 bills. What is the domain where y is a function of x and the total amount is \$23?

A) {0, 1, 2, 3, 4}

B) {1, 2, 3, 4}

C) {0, 1, 2, 3, 4, 5, 6, ..., 23}

D) {1, 2, 3, 4, 5, 6, ..., 23}

of \$5 bills

14.) A really bad cold is going around. The following table represents the number of sick students in a school on a given day.

DAYS	1	2	3	4	5	6	7
SICK STUDENTS	12	23	34	45	56	67	78

+11 +11 +11 $m = 11$

What function could represent the number of sick students after x days, assuming the cold keeps spreading?

A) $f(x) = 11x + 12$

~~B) $f(x) = 12x + 11$~~

~~C) $f(x) = 11 + 12(x - 1)$~~

D) $f(x) = 12 + 11(x - 1)$

15.) Jesus has \$34 in his bank account. With his new job, he deposits the same amount each week into the account. After 35 weeks, Jesus has \$909. What function can find the amount in Jesus's account after w weeks?

(0, 34) (35, 909)

$m = \frac{875}{35}$

$m = 25$

A) ~~$f(w) = 35w + 34$~~

B) $f(w) = 25w + 34$

C) $f(w) = \frac{909}{35}w + 34$

D) $f(w) = 25(w - 1) + 34$

16.) What function describes the nth term of the following sequence?

9, 16, 23, 30, ...

$a_n = 7(n-1) + 9$

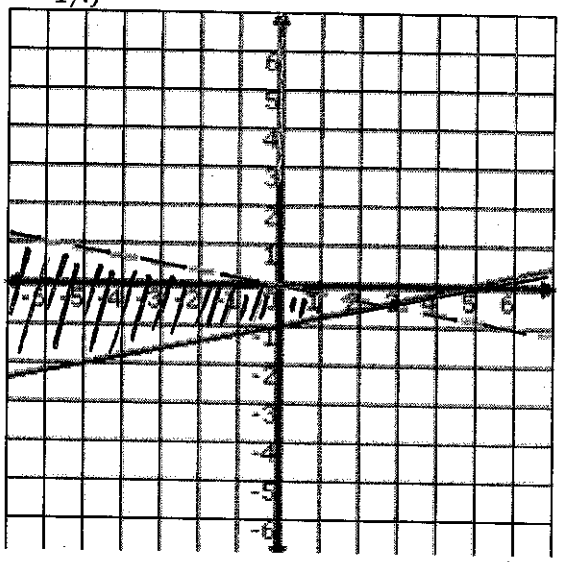
A) $f(n) = 9n + 7$

B) $f(n) = 7n + 9$

C) $f(n) = 9(n - 1) + 7$

D) $f(n) = 7(n - 1) + 9$

17.)



solid line $\geq \frac{1}{5}x - 1$

dotted line $\leq \frac{-1}{6}x$

Choose the system of inequalities that matches the graph.

A. $y < -6x$
$y \geq {}^1/_5x - 1$

B. $y < {}^{-1}/_6x$
$y \geq {}^1/_5x - 1$

C. ~~$y < {}^{-1}/_6x$~~
~~$y \geq 5x$~~

D. $y < {}^{-1}/_6x$
$y \leq {}^1/_5x - 1$

18.) Solve the inequality:

$-x < -x + 7(x - 2)$

$-x < -x + 7x - 14$

$-x < 6x - 14$

$7x < 14$

$x < 2$

19.) Solve the equation:

$18\left(\frac{x}{9} + \frac{4}{3}\right) = \left(\frac{1}{2}x - 1\right)18$

$2x + 24 = 9x - 18$

$24 = 7x - 18$

$42 = 7x$

$x = 6$

20.) What is the value of x for $-4(2x + 3) - 10x = 14(x - 8) + 3x$?

Leave your answer in fraction form.

$-8x-12-10x=14x-112+3x$

$-18x-12=17x-112$

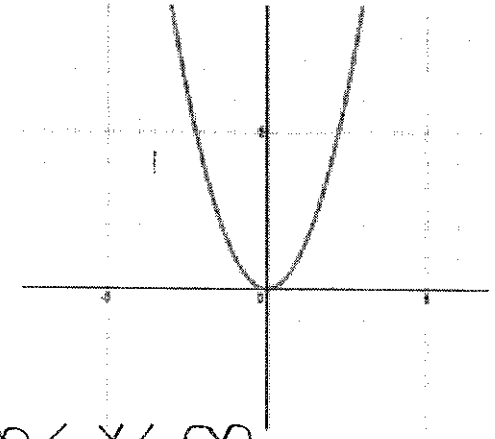
$-12=35x-112$

$100=35x$

$2.80=x$

$\frac{100}{35}=\frac{20}{7}$

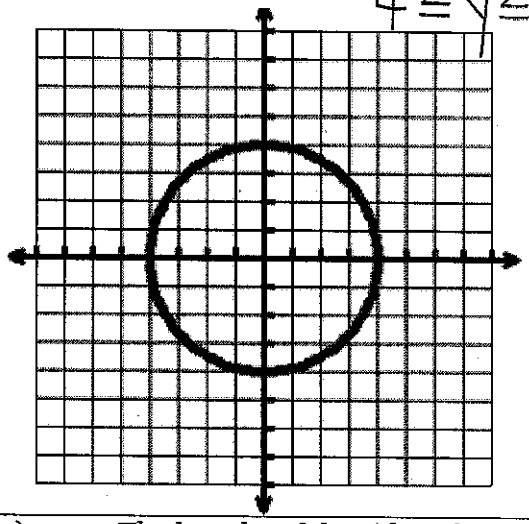
21.) What is the domain of the graph below?



$-\infty \leq x \leq \infty$

22.) What is the range of the graph below?

$-4 \leq y \leq 4$



23.) Given the function, $f(x) = \frac{x-4}{3}$, what is the value of $f(\frac{1}{2})$?

$f(\frac{1}{2})=\frac{\frac{1}{2}-4}{3}$

$f(\frac{1}{2})=\frac{-7}{6}$

24.) The lengths of the sides of triangle are three consecutive even integers. If the perimeter of the triangle is 72 inches, what is the length of the longest side?

$n+(n+2)+(n+4)=72$

$3n+6=72$

$3n=66$

$n=22$

$n+4=26$

25.) The length of a square is $2x - 1$ units. The width of the square is $x + 5$ units. What is the area of the square?

$2x-1=x+5$

$x-1=5$

$x=6$

$2(6)-1=11$

$6+5=11$

11^2

A. 36 *units*^{2}

B. 49 *units*^{2}

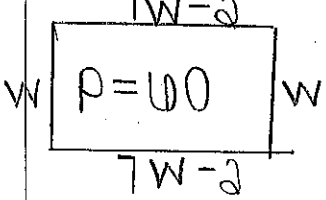
C. 121 *units*^{2}

D. 25 *units*^{2}

$x^2=36$

$x=6$

26.) The length of a rectangle is 2 times 1 less than 3.5 times the width. The perimeter is 60 cm. Find the width of the rectangle.



$L=2(3.5W-1)$

$L=7W-2$

$14W-4=60$

$14W=64$

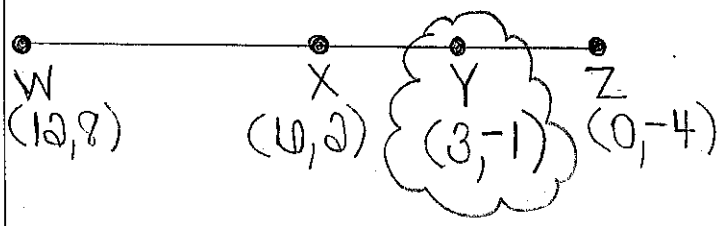
$W=4$ units

27.) The expression $2T + 3F + 4M + 10E$ gives the number of points a student earns on a test when the student correctly answers T true-false questions, F fill-in-the-blank questions, M multiple-choice questions, and E extended-response questions.

True or False:

F The term 2T represents the number of total number of points earned for answering 2 true or false questions correctly.

28.) X is the midpoint of line segment WZ. Y is the midpoint of line segment XZ. W is located at (12, 8) and Z is at (0, −4). What are the coordinates of Y?



29.) Lori graphed a linear function with a negative x-intercept and positive y-intercept. Which choice could be the function Lori graphed?

A. $3x - 2y = -24$ (−8,0)(0,12)
B. $3y + 2x = -24$ (−12,0)(0,−8)
C. $3x - 2y = 24$ (8,0)(−12,0)
D. $3y - 2x = 24$ (−12,0)(0,8)

30.) Which recursive formula produces an arithmetic sequence where $g_4 = 6.4$ *and* $g_9 = 9.4$?

A. $g_n = 1.06_{n-1}$, *where* $g_1 = 4$
B. $g_n = 1.06_{n-1}$, *where* $g_1 = 4.6$
C. $g_n = g_{n-1} + 4$ *where* $g_1 = 4$
D. $g_n = g_{n-1} + 0.6$ *where* $g_1 = 4.6$

4.6, 5.2, 5.8, 6.4, 7, 7.6, 8.2, 8.8, 9.4
↓ 1 ↓ 4 ↓ 9