

Name: Key

Period: _____

Algebra I EOC - Review
1st Semester, 2018

Simplify the following expressions.

1. $-\frac{1}{2}(x-3) + \frac{4}{5}(2x+1)$ $11x + 23$

2. $\frac{3}{4}(2x+1) - \frac{2}{3}(x-1)$ $10x + 17$

3. $-(6x-4) + 5(2x+3)$ $4x + 19$

4. $-2(3x-1) - 4(x+1)$ $-10x - 2$

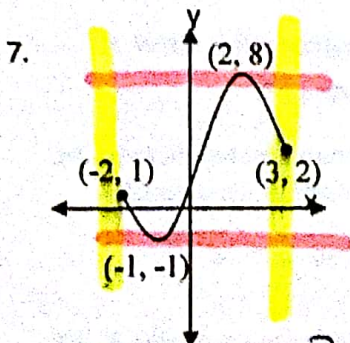
Find the following for each of the problems below.

- A. Table with 5 values
- B. Graph of function
- C. Standard form of the function
- D. Slope-Intercept form of the function
- E. Slope
- F. Zero of the linear function
- G. Domain
- H. Range
- I. y-intercept
- J. X-intercept

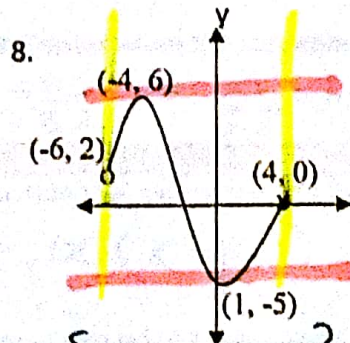
5. $y = -2x + 3$

6. $y = \frac{2}{3}x + \frac{1}{2}$

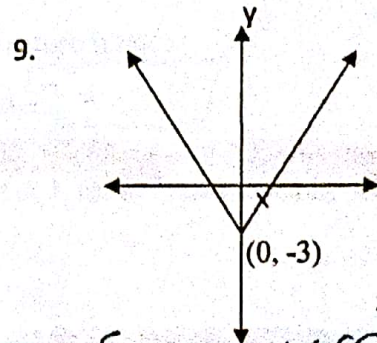
Identify the Domain and Range of the following. Use approximate values.



$D: \{-2 \leq x \leq 3\}$
 $R: \{-1 \leq y \leq 8\}$



$D: \{-6 < x \leq 4\}$
 $R: \{-5 \leq y \leq 6\}$



$D: \{-\infty < x < \infty\}$
All real numbers
 $R: \{-3 \leq y < \infty\}$
or $y \geq -3$

10. What is the Domain of $f(x) = 3x - 5$ when the range is $\{0, 4, 8\}$?

Domain: $\{\frac{5}{3}, 3, \frac{13}{3}\}$

11. What is the Range of $f(x) = -\frac{4}{5}x - 2$ when the domain is $\{0, 5, 15\}$?

$f(0) = -\frac{4}{5}(0) - 2$
 $= -2$

$f(5) = -\frac{4}{5}(5) - 2$
 $= -4 - 2$
 $= -6$

$f(15) = -\frac{4}{5}(15) - 2$
 $= -12 - 2$
 $= -14$

Range:
 $\{-14, -6, -2\}$

$$y = 2.50 + .30x$$

12. The cost of taking a taxi ride is given by the formula $c = 2.50 + .30m$ where m represents the number of miles ridden in the taxi.

- A. What is the x-intercept? $0 = 2.50 + .30x$ $(-8.\bar{3}, 0)$ $y = 2.50 + .30(0)$
 B. What is the y-intercept? $-2.50 = .30x$ $(0, 2.50)$
 C. What is the zero of the linear function? $\frac{-25}{.3}$ or $-8.\bar{3}$
 D. What does 2.50 represent? In real life base fee Algebraically y-intercept
 E. What does .30 represent? In real life # of miles Algebraically slope
 F. What is the cost of a trip that is 20 miles long? $\$ 8.50$ $c = 2.50 + .30(20)$
 G. What is the dependent variable? Cost \$
 H. What is the independent variable? miles

13. The relationship between Fahrenheit temperature, F , and Celsius temperature, C , is represented in the table.

X		Y	
C	F	C	F
-5	23		
0	32		
5	41		
10	50		

- A. What is the linear function? $F = 1.8C + 32$
 B. What does 32 represent? In real life Freezing Point Algebraically y-intercept
 C. What does $\frac{9}{5}$ (1.8) represent? In real life Conversion Algebraically slope
 D. What is the temperature in Celsius when the Fahrenheit temperature is 86° ?

$$86 = 1.8C + 32 \rightarrow \frac{54}{1.8} = \frac{1.8C}{1.8} \rightarrow C = 30^\circ$$

14. Jackson's team earns $\$.50$ for every box of candy sold over the first 100 boxes and $\$.25$ per every box of candy sold. Write the equation that can be used to find the total, T , for all boxes of candy sold.

$$T = .25x + .50(x - 100)$$

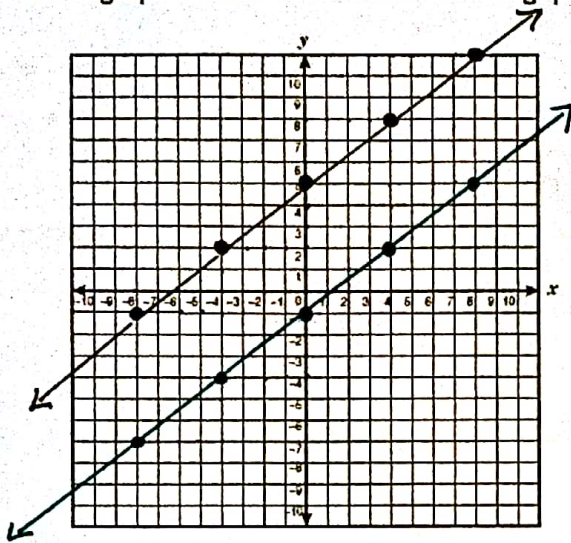
15. A cab company charges $\$ 5$ for a trip under 2 miles and an additional $\$ 2.50$ for every mile over 2 miles. Write an equation that can be used to find the charge for a trip, t , that is over 2 miles.

$$t = 5 + 2.50(m - 2)$$

16. Chuck E Cheese has a celebration deal that charges $\$ 20$ for the first 50 game tokens and $\$.25$ for every game token over 50. Write an equation that can be used to find the total, t , cost to purchase over 50 tokens.

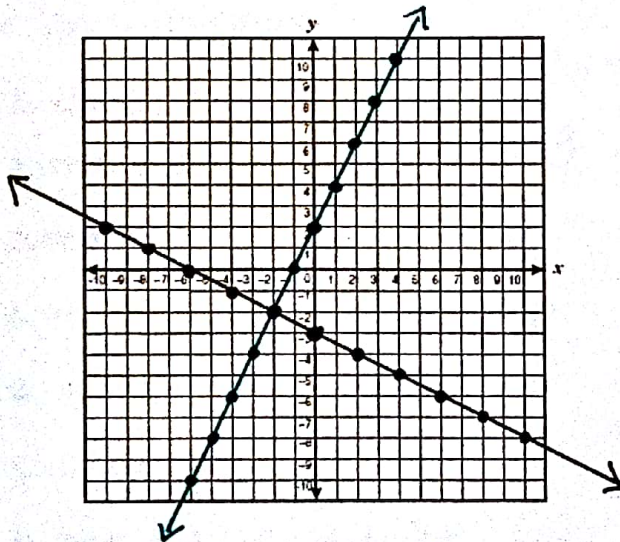
$$t = 20 + 0.25(g - 50)$$

17. Use the graph below. Answer the following questions.



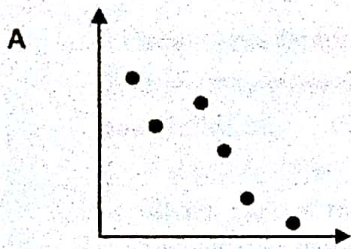
- A. Graph the line containing the point $(0, -1)$ with a slope of $\frac{3}{4}$.
- B. Write the equation of that line. $y = \frac{3}{4}x - 1$
- C. Graph the line with a y-intercept of 5 and a slope of $\frac{3}{4}$.
- D. Write the equation of that line. $y = \frac{3}{4}x + 5$

18. Use the graph below. Answer the following questions.



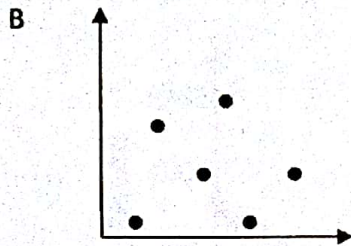
- A. Graph the line containing the point $(0, 2)$ with a slope of 2.
- B. Write the equation of that line. $y = 2x + 2$
- C. Graph the line with a y-intercept of -3 and a slope of $-\frac{1}{2}$.
- D. Write the equation of that line. $y = -\frac{1}{2}x - 3$

19. Match the graph to its description and identify the type of correlation.

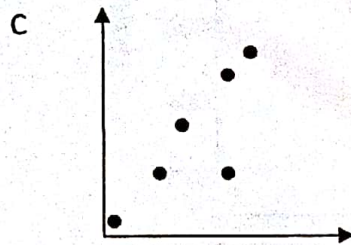


2
Negative
Correlation

1. Graph of review grades to test grade.
2. Graph of age of a car to its value.
3. Age of students to their grade on exam.



3 No
Correlation



1 Positive
Correlation

20. For $\frac{2}{3}(x+3) - 4 = y$, find the value of y

- A. When $x = -\frac{3}{2}$
- B. When $x = 5$

$$\frac{2}{3}\left(-\frac{3}{2} + 3\right) - 4 = y$$

$$y = -3$$

$$\frac{2}{3}(5+3) - 4 = y$$

$$y = \frac{4}{3}$$

21. Solve the following for the given variable.

A. $15 = 3n + 6p$, for n $n = 5 - 2p$

B. $a(q - 8) = 23$, for q $q = \frac{23}{a} + 8$

C. $C = 2\pi r$, for r $r = \frac{C}{2\pi}$

D. $D = rt$, for t $t = \frac{D}{r}$

E. $F = ma$, for m $m = \frac{F}{a}$

F. $p = 2(L + w)$, for w $w = \frac{p}{2} - L$

G. $I = prt$, for p $p = \frac{I}{rt}$

22. A car costs \$1200. You will pay \$300 down and \$50 per month. Answer the following questions.

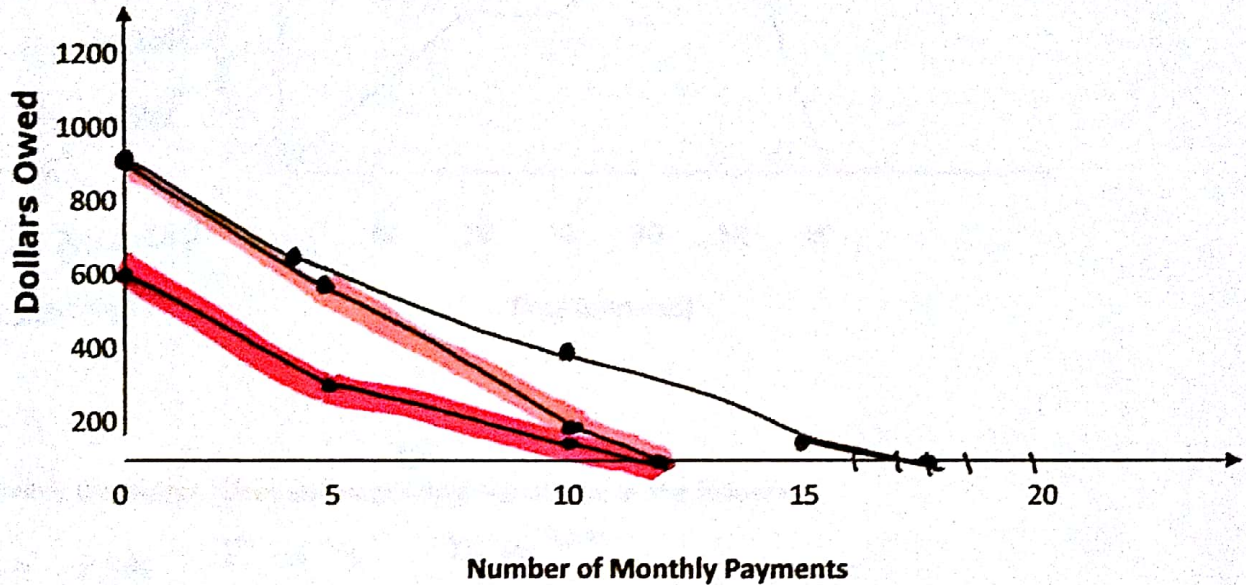
A. How many months will it take to pay off the car? *18 months*

B. If you pay down \$600 and still keep the same monthly payment, how many months will it take to pay off the car? *12 months*

C. If you pay down \$300 and pay \$75 per month, how many months will it take to pay off the car? *12 months*

D. Graph each of the above situations, A, B, and C.

E. Identify the domain and range for each situation.



23. The perimeter of an equilateral triangle is $25x - 12$. What is the length of each side?

same sides
3-sides

$P = 25x - 12$

$$\begin{aligned} 3x &= 25x - 12 \\ -25x & \quad -25x \\ \hline -22x &= -12 \\ \frac{-22x}{-22} &= \frac{-12}{-22} \\ x &= \frac{6}{11} \end{aligned}$$

24. The perimeter of the quadrilateral below is 36 inches. What is the length of the shortest and longest sides?

$2(4) + 7 = 8 + 7 = 15$

$4 - 2 = 2$

$2(4) - 5 = 8 - 5 = 3$

$3(4) + 4 = 12 + 4 = 16$

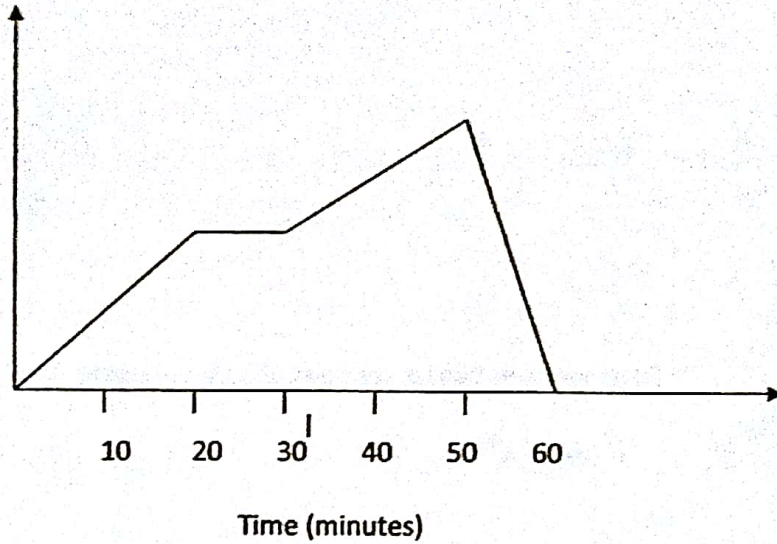
$$\begin{aligned} 8x + 4 &= 36 \\ -4 & \quad -4 \\ \hline 8x &= 32 \\ \frac{8x}{8} &= \frac{32}{8} \\ x &= 4 \end{aligned}$$

Shortest: 2 in
 Longest: 16 in

25. Create a written description that could be used to explain the graph below.

Answers will vary!

Ron's Exercise Routine



Calories burned increased steadily.
 Calories burned became constant.
 Calories burned increased.
 Calories burned decreased.

26. Identify the independent and dependent variable(s) in the following.

A. $P = 4s$ I is s D is P

B. $f(x) = 2x - 1$ I is x D is $f(x)$

C. A car travels 250 miles in 5.5 hours. I is hours D is miles traveled

D. Jackson's team earned \$675 selling cookies for \$2.50 a box.

E. $V = \pi r^2 h$ I is # of boxes D is \$ earned

I is radius + height D is Volume

27. Simplify each of the following: (Answers should not have negative exponents)

A. $(x^{-2}x^{-3})^4 = \frac{1}{x^{20}}$

C. $(n^3)^3 \cdot 2n^{-1} = 2n^8$

B. $(x^4)^{-3} \cdot 2x^4$

D. $(2v)^2 \cdot 2v^2$

$\frac{2}{x^8}$

$8v^4$

28. Simplify each of the following: (Answers should not have negative exponents)

A. $\frac{2y^3 \cdot 3xy^3}{3x^2y^4} \frac{2y^2}{x}$

C. $\frac{3x^2y^2}{2x^{-1} \cdot 4yx^2} \frac{3xy}{8}$

B. $\frac{2m^{-4}}{(2m^{-4})^3} \frac{m^8}{4}$

D. $\frac{x}{(2x^0)^2} \frac{x}{4}$

29. Simplify each of the following: (Answers should not have negative exponents)

A. $(a^{-3}b^{-3})^0 \underline{1}$

C. $x^4y^3 \cdot (2y^2)^0 x^4y^3$

B. $(2x^0y^2)^{-3} \cdot 2yx^3 \frac{x^3}{4y^5}$

30. Walmart sells a DVD player for \$75 more than twice the amount it actually costs the store to purchase. If Walmart sells the DVD player for \$495, how much did Walmart actually pay for the DVD player?

$$\begin{array}{r} 75 + 2C = 495 \\ -75 \quad -75 \\ \hline 2C = 420 \end{array} \quad \frac{2C = 420}{2} \quad \boxed{C = \$210}$$

31. Twice a number increased by 74 is 10 less than three times the number. What is the number?

$$\begin{array}{r} 2x + 74 = 3x - 10 \\ -2x \quad -2x \\ \hline 74 = x - 10 \end{array} \quad \begin{array}{r} 74 = x - 10 \\ +10 \quad +10 \\ \hline 84 = x \end{array} \quad \boxed{84 = x}$$

32. Half a number decreased by 17 is 5 more than the number. What is the number?

$$\begin{array}{r} \frac{1}{2}x - 17 = 5 + x \\ -\frac{1}{2}x \quad -\frac{1}{2}x \\ \hline -34 = 10 - x \\ -10 \quad -10 \\ \hline -44 = -x \end{array} \quad 2(-17 = 5 - \frac{1}{2}x) \quad \boxed{x = 44}$$

33. Solve.

$$\frac{\frac{2}{5}x - 3 = 18}{5 + 3 + 3} \quad 5\left(\frac{2}{5}x = 21\right) \quad \boxed{x = \frac{105}{2}}$$

$$\frac{2x}{2} = \frac{105}{2}$$

34. Solve.

$$4(x-1) = -(10+x) + 3x$$

$$\begin{array}{r} 4x - 4 = -10 - x + 3x \\ 4x - 4 = -10 + 2x \\ -2x \quad -2x \\ \hline 2x - 4 = -10 \\ +4 \quad +4 \\ \hline 2x = -6 \end{array} \quad \frac{2x}{2} = \frac{-6}{2} \quad \boxed{x = -3}$$

35. Solve. $5x - (2x + 7) = 2(3x - 14)$

$x = 7$

36. Solve. $\frac{2}{3}(x - 3) + \frac{1}{3}(x + 6) = 18$

$x = 18$

37. Simplify. $-(6x - 4) + 5(2x + 3)$

$4x + 19$

38. Simplify. $-2(3x - 1) - 4(-x + 1)$

$-2x - 2$

39. Write the equation of the line containing (8, 5) and (3, 0).

$y = x - 3$

40. Write the equation of the line with y-intercept 5 and containing the point (-2, 7).

$y = -x + 5$

41. Write the equation of a line with slope of 3 and containing the point (-3, -2).

$y = 3x + 7$

42. Write the equation of a line containing the point (4, 2) and with a slope of $-\frac{3}{2}$.

$y = -\frac{3}{2}x + 8$

43. What is the function that includes the data set {(0, -2), (1, 1), (3, 7)}?

$y = 3x - 2$

44. What is the rate of change of the line containing the points (9, -2) and (-3, -5)?

$\frac{-5 + 2}{-3 - 9} = \frac{-3}{-12} = \frac{1}{4}$ $m = \frac{1}{4}$

45. Identify the rate of change for each of the following.

A. $y = 3x - 4$ $m = 3$

B. $y = -\frac{2}{3}x + 5$ $m = -\frac{2}{3}$

C. $4x - 5y = 7$
 $\frac{-4x - 4x}{-5y} = \frac{-4x + 7}{-5}$ $m = \frac{4}{5}$
 $y = \frac{4}{5}x - \frac{7}{5}$

D. $\frac{\Delta y}{\Delta x} = \frac{2}{-2} = -1$

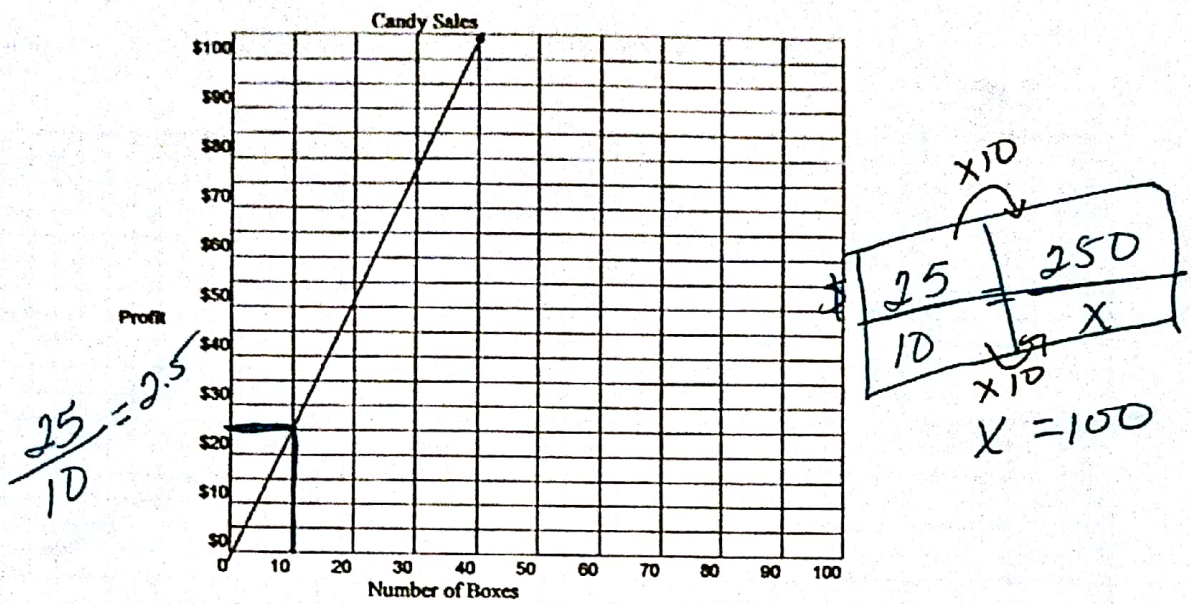
x	4	2	0	-2	-4
y	-1	1	3	5	7

$m = -1$

E. (-2, 8), (6, 4)

$\frac{4 - 8}{6 + 2} = \frac{-4}{8} = -\frac{1}{2}$ $m = -\frac{1}{2}$

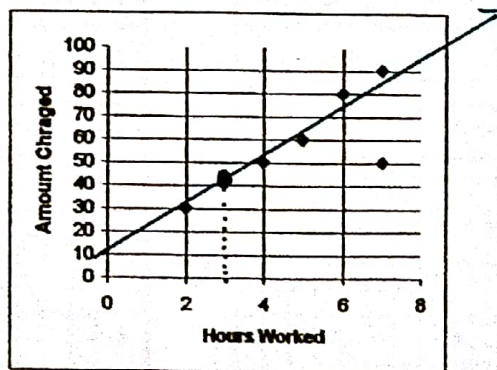
46. The graph shows the relationship between the number of boxes of candy sold and the amount of profit made.



How many boxes of candy must be sold to yield a \$250 profit?

- A 50
- B 100**
- C 125
- D 175

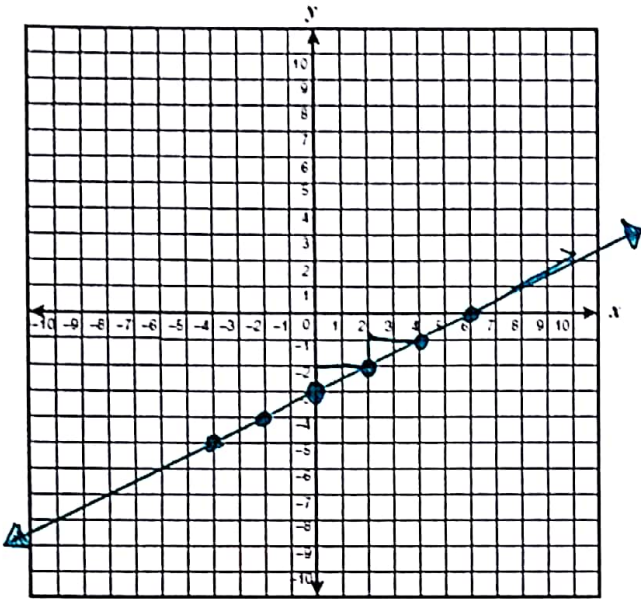
47. A computer technician charges for his labor based on the number of hours and difficulty of the job. The graph shows the amount charged for 6 jobs. What would be a reasonable prediction for an average job requiring 3 hours of work?



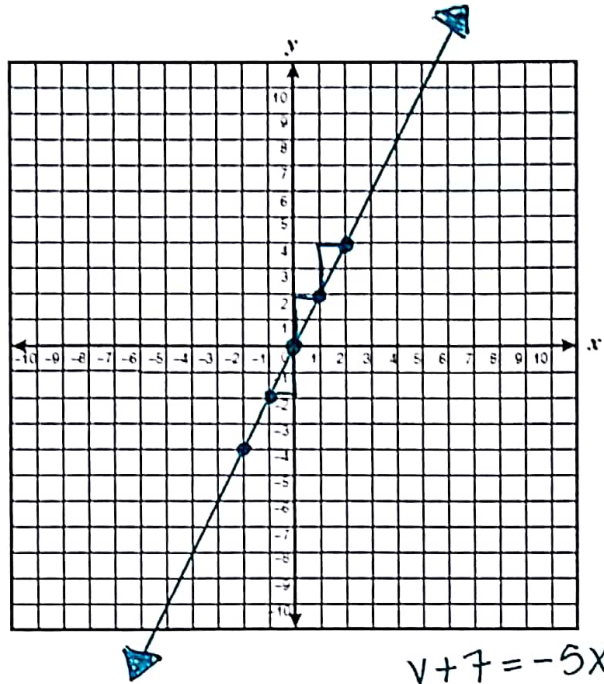
- A \$20
- B \$30
- C \$40**
- D \$50

48. Graph the following equations.

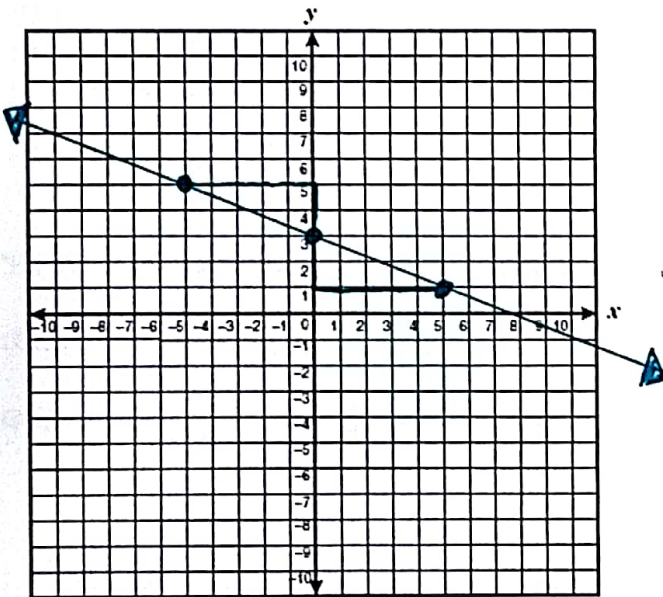
A. $y = \frac{1}{2}x - 3$



B. $y = 2x$

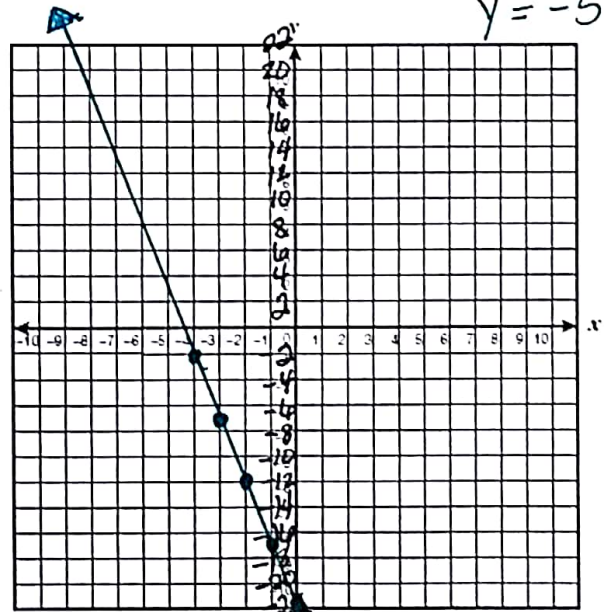


C. $y = -\frac{2}{5}x + 3$



D. $y + 7 = -5(x + 3)$

$$\begin{array}{r} y + 7 = -5x - 15 \\ -7 \quad \quad -7 \\ \hline y = -5x - 22 \end{array}$$



x	y
-1	-17
-2	-12
-3	-7
-4	-2

Change your scale by 2's
make a table to find points.

49. If $f(x) = -3x + 6$, what is the value of $f(-3)$?

$$f(-3) = -3(-3) + 6 \rightarrow f(-3) = 9 + 6 \rightarrow \boxed{f(-3) = 15}$$

50. If $f(x) \leq -5x - 3$, list three coordinate points that would be in the solution set.

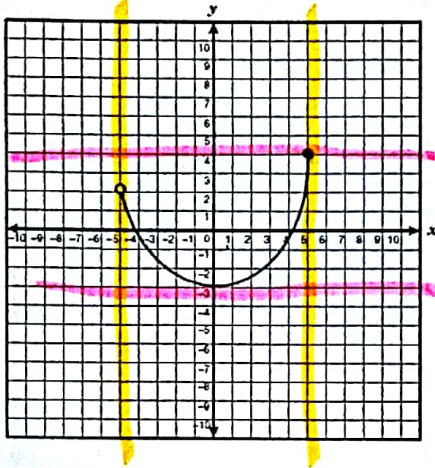
There are many answers.

51. If $f(x) \geq 0.25x + 15$, list three coordinate points that would be in the solution set.

There are many answers.

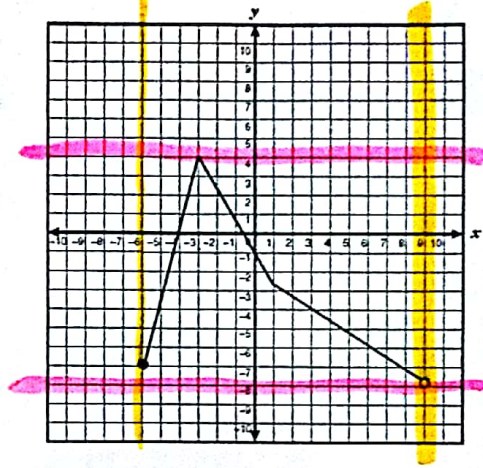
52. What is the range and domain of the following functions?

**What is the highest and lowest go? graph will*



Range $-3 \leq y \leq 4$

Domain $-5 < x \leq 5$



Range $-8 < y \leq 4$

Domain $-6 \leq x < 9$

53. Write the parent function, create a table, and graph the function.

Linear parent function - $y = x$

Graph

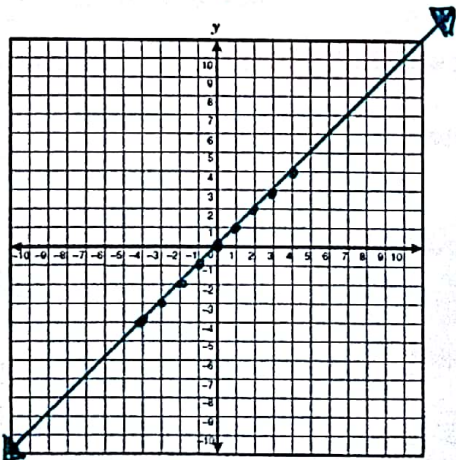


Table of Values

x	y
-5	-5
-3	-3
0	0
2	2
4	4

54. Identify which of the following is a direct variation.

~~X~~ $5xy = -20$

~~X~~ $y = 2x + 3$

~~X~~

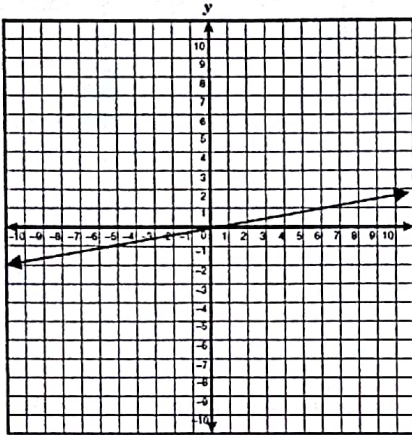
x	y
-8	-1
-4	-2
12	-6
30	-10.5

$\frac{-1}{4} \quad y+1 = -\frac{1}{4}(x+8)$
 $y+1 = -\frac{1}{4}x - 2$
 $\frac{-1 \quad -1}{y = -\frac{1}{4}x - 3}$

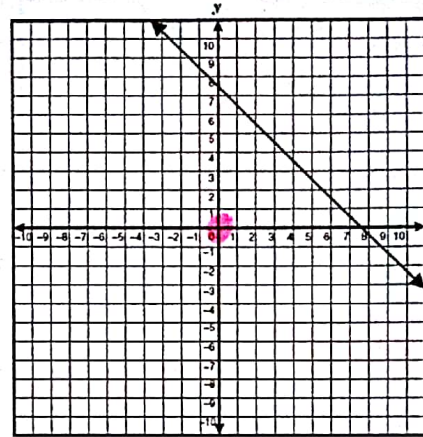
~~X~~

x	y
20	120
40	60
60	40
120	20

E.



~~X~~



G. The cost of 5 movie theater tickets is \$42.00, so the cost of 2 movie theater tickets at the same price would be what?

ticket	5	2
\$	42	x

$\frac{5x = 84}{5} = \frac{84}{5}$
 $x = 16.8$

$\frac{16.8 - 42}{2 - 5} = 8.4$

$y - 42 = 8.4(x - 5)$
 $y - 42 = 8.4x - 42$
 $+42 \quad +42$
 $y = 8.4x$

55. Find the slope of a line perpendicular to the graph of each equation.

A. $y = 2x \quad m = 2 \xrightarrow{\perp} -\frac{1}{2}$ Slope of the perpendicular line: $-\frac{1}{2}$

B. $2x + 3y = 5 \quad y = -\frac{2}{3}x + \frac{5}{3}$ Slope of the perpendicular line: $\frac{3}{2}$

C. $5x = 10y + 5 \quad y = \frac{1}{2}x - \frac{1}{2}$ Slope of the perpendicular line: -2

D. $y = -7$ Slope of the perpendicular line: undefined

$y = 0x - 7$

Horizontal $\perp \rightarrow$ Vertical

56. Write an equation for a line that is perpendicular to the given line and passes through the given point.

A. $y = 2x + 7$; (0,0)

Equation of perpendicular line: $y = -\frac{1}{2}x$

B. $4x - 2y = 9$; (8, -2)

Equation of perpendicular line: $y = -\frac{1}{2}x + 2$

C. $y = 56$; (3, 5)

Equation of perpendicular line: $x = 3$

57. Given $x - 3y = -18$ select the table below that represents a line perpendicular to this equation.

$-x - 3y = -18$
 $-3y = -x - 18$
 $y = \frac{1}{3}x + 6$ $m = \frac{1}{3} \perp \rightarrow -3$

$+3 \left(\begin{array}{c} \rightarrow \\ \downarrow \end{array} \right) +1$

x	y
-3	-1
0	0
3	1
6	2

$\frac{\Delta y}{\Delta x} = \frac{1}{3}$

$+1 \left(\begin{array}{c} \rightarrow \\ \downarrow \end{array} \right) +3$

x	y
-4	-3
-3	0
-2	3
-1	6

$\frac{\Delta y}{\Delta x} = \frac{3}{1} = 3$

$+3 \left(\begin{array}{c} \rightarrow \\ \downarrow \end{array} \right) -1$

x	y
-6	4
-3	3
-0	2
3	1

$\frac{\Delta y}{\Delta x} = \frac{-1}{3}$

$+1 \left(\begin{array}{c} \rightarrow \\ \downarrow \end{array} \right) +3$

x	y
1	0
2	-3
3	-6
4	-9

$\frac{\Delta y}{\Delta x} = \frac{-3}{1} = -3$

58. Given $y = -\frac{3}{2}x + 4$ select the table below that represents a line perpendicular to this equation.

$m = -\frac{3}{2} \perp \rightarrow \frac{2}{3}$

$+2 \left(\begin{array}{c} \rightarrow \\ \downarrow \end{array} \right) +3$

x	y
-4	-18
-2	-15
0	-12
2	-9

$\frac{\Delta y}{\Delta x} = \frac{3}{2}$

$+3 \left(\begin{array}{c} \rightarrow \\ \downarrow \end{array} \right) -2$

x	y
-4	6
-1	8
2	10
5	12

$\frac{\Delta y}{\Delta x} = \frac{2}{3}$

$+2 \left(\begin{array}{c} \rightarrow \\ \downarrow \end{array} \right) -3$

x	y
-1	-6
1	-9
3	-12
5	-15

$\frac{\Delta y}{\Delta x} = \frac{-3}{2}$

$+3 \left(\begin{array}{c} \rightarrow \\ \downarrow \end{array} \right) -2$

x	y
-5	-8
-2	-10
1	-12
4	-14

$\frac{\Delta y}{\Delta x} = \frac{-2}{3}$

59. Find the slope of a line parallel to the graph of each equation.

A. $-4x + 3y = -6$ $y = \frac{4}{3}x - 2$ Slope of the parallel line: $m = \frac{4}{3}$

B. $y = \frac{1}{5}x + 14$ Slope of the parallel line: $m = \frac{1}{5}$

C. $y = 21$ $y = 0x + 21$ Slope of the parallel line: $m = 0$

D. $x = -7$ undefined Slope of the parallel line: undefined

60. Write an equation for a line that is parallel to the given line and passes through the given point.

A. $-4x + 3y = -6$; $(-1, 1)$

Equation of parallel line: $y = \frac{4}{3}x + \frac{7}{3}$

B. $y = \frac{1}{5}x + 5$; $(2, -1)$

Equation of parallel line: $y = \frac{1}{5}x - \frac{7}{5}$

C. $y = 2$; $(-3, 3)$

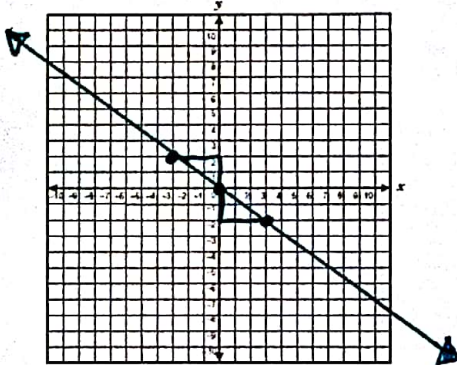
Equation of parallel line: $y = 3$

D. $y = 0.75$; $(0, 1)$

Equation of parallel line: $y = 1$

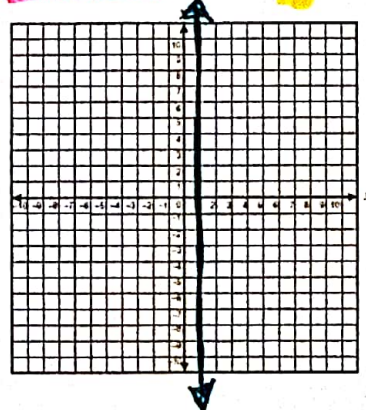
61. Graph a line with the given specifications.

A. Slope of $-\frac{2}{3}$ and $(0, 0)$

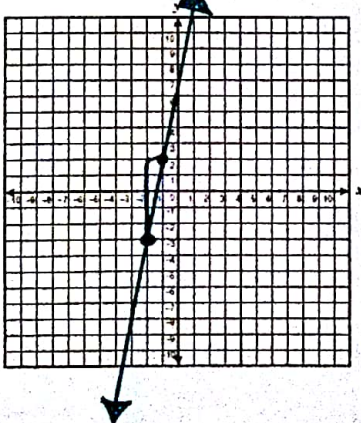


Vertical line $x=1$

B. Undefined slope and $(1, 3)$



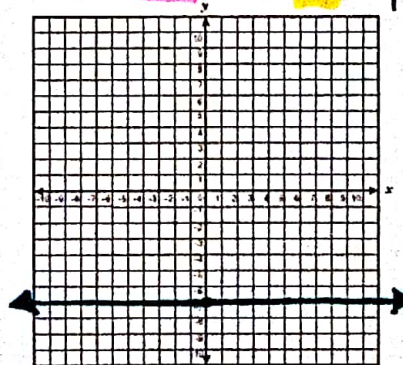
C. Slope of 5 and $(-2, -3)$



Horizontal line

D. Slope of zero and $(8, -7)$

$y = -7$



62. The Johnson family is vacationing during winter break in their new car. At the end of the first day, Mrs. Johnson noted that the car mileage was 800 miles. By the end of the second day, the car mileage was 1050. If the Johnsons continue to drive approximately the same amount of miles each day, write an equation that could be used to determine the mileage on any given day. Then, approximate the Johnson's car mileage at the end of day 8.

X	Y
1	800
2	1050

$\begin{matrix} -250 \\ +250 \end{matrix}$

$$y = 250x + 550$$

$$y = 250(8) + 550$$

$$y = 2000 + 550$$

$$y = 2550$$

2550 Miles

X - Days
Y - Car mileage

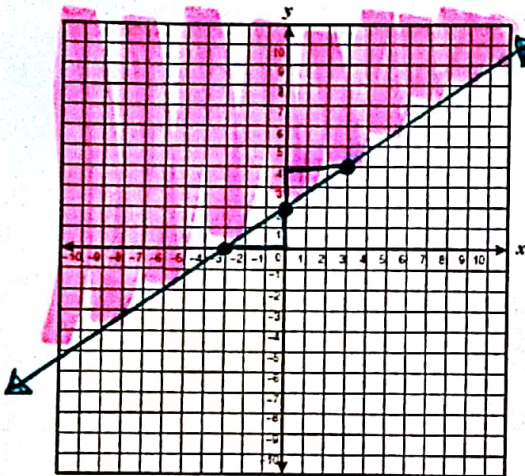
63. Graph the possible solutions for the inequalities given below.

A. $2x - 3y \leq 6$

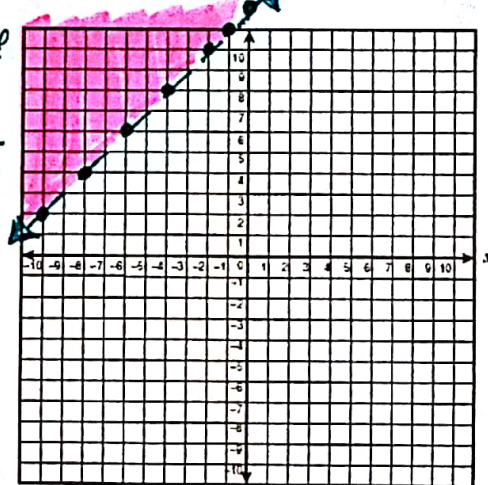
$$\begin{matrix} 2x - 3y \leq 6 \\ -2x & -2x \end{matrix}$$

$$\begin{matrix} -3y \leq -2x + 6 \\ -3 & -3 \end{matrix}$$

$$y \geq \frac{2}{3}x - 2$$



B. $y > x + 12$



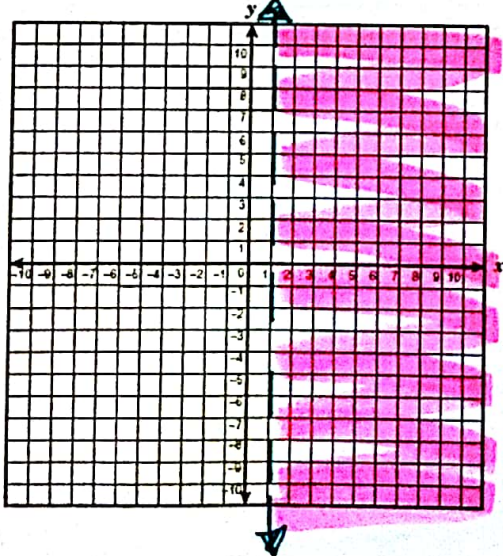
C. $4x - 1 > 3$

$$\begin{matrix} 4x - 1 > 3 \\ +1 & +1 \end{matrix}$$

$$\begin{matrix} 4x > 4 \\ 4 & 4 \end{matrix}$$

$$x > 1$$

Vertical line



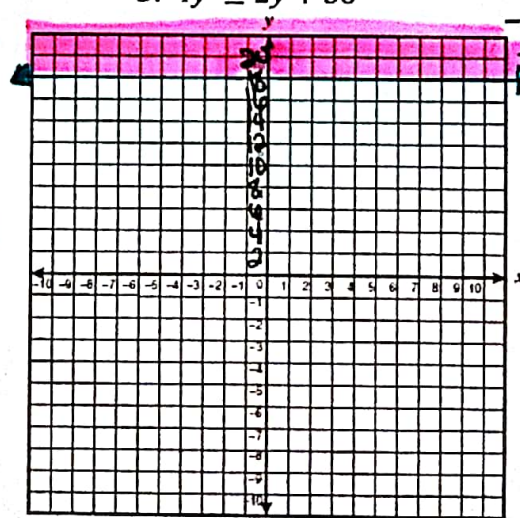
D. $4y \geq 2y + 36$

$$\begin{matrix} 4y \geq 2y + 36 \\ -2y & -2y \end{matrix}$$

$$\begin{matrix} 2y \geq 36 \\ 2 & 2 \end{matrix}$$

$$y \geq 18$$

Change ~~Scale~~ Scale



64. Find $g(x)$, where $g(x)$ is the translation 8 down from $f(x) = x$. Write your answer in slope-intercept form, where m and b are integers.

$$y = x - 8$$

65. Describe the transformation of the graph from the parent function $f(x) = x$ to $f(x) = x + 6$.

vertical translation
up 6 units

66. Shelby's printer had 500 sheets of paper in it. After Monday, there were 466 sheets of paper. After Tuesday, there were 432 sheets of paper. After Wednesday, there were 398 sheets of paper. If this pattern continues, how many sheets of paper will be left after Friday?

Y	500	466	432	398	364	330
X	0	1	2	3	4	5
		Mon	Tues	Wed	Thurs	Fri

330 sheets

67. Write the formula for the n^{th} term in the following arithmetic sequence.

+8 +8 +8
-6, 2, 10, 18, ...

$$a_n = a_1 + d(n-1)$$

$$a_n = -6 + 8(n-1)$$

$$a_n = -6 + 8n - 8$$

$$a_n = 8n - 14$$

68. Given the explicit formula find the first 5 terms.

$$a_n = 4n - 6$$

$$\begin{aligned} a_1 &= 4(1) - 6 \\ &= 4 - 6 \\ &= -2 \end{aligned}$$

$$\begin{aligned} a_3 &= 4(3) - 6 \\ &= 12 - 6 \\ &= 6 \end{aligned}$$

{-2, 2, 6, 10, 14}

$$\begin{aligned} a_2 &= 4(2) - 6 \\ &= 8 - 6 \\ &= 2 \end{aligned}$$

$$\begin{aligned} a_4 &= 4(4) - 6 \\ &= 16 - 6 \\ &= 10 \end{aligned}$$

$$\begin{aligned} a_5 &= 4(5) - 6 \\ &= 20 - 6 \\ &= 14 \end{aligned}$$

Algebra Semester Review

① $-\frac{1}{2}(x-3) + \frac{4}{5}(2x+1)$

$^{10} \left(-\frac{1}{2}x + \frac{3}{2} + \frac{8}{5}x + \frac{4}{5} \right)$

$-5x + 15 + 16x + 8$
 $\boxed{11x + 23}$

② $\frac{3}{4}(2x+1) - \frac{2}{3}(x-1)$

$^{12} \left(\frac{3}{2}x + \frac{3}{4} - \frac{2}{3}x + \frac{2}{3} \right)$

$18x + 9 - 8x + 8$
 $\boxed{10x + 17}$

③ $-(6x-4) + 5(2x+3)$

$-6x + 4 + 10x + 15$
 $\boxed{4x + 19}$

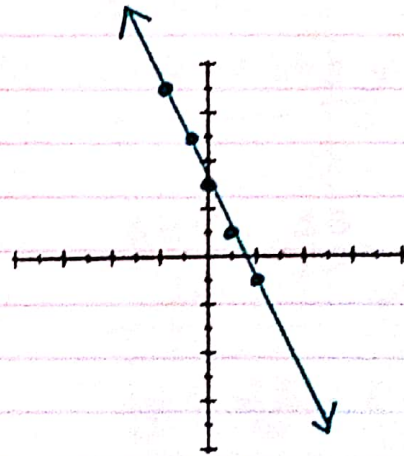
④ $-2(3x-1) - 4(x+1)$

$-6x + 2 - 4x - 4$
 $\boxed{-10x - 2}$

⑤ $y = -2x + 3$

A. x	-2x+3	y
-2	-2(-2)+3	7
-1	2+3	5
0	0+3	3
1	-2+3	1
2	-4+3	-1

B.



C. $y = -2x + 3$
 $+2x \quad +2x$

$\boxed{2x + y = 3}$

D. $y = -2x + 3$ or
 $F(x) = -2x + 3$

E. $m = -2$

F. $y = -2x + 3$

G: D: $\{-\infty < x < \infty\}$

$0 = -2x + 3$
 $-3 = -2x$
 $\frac{-3}{-2} = \frac{-2x}{-2}$

H: R: $\{-\infty < y < \infty\}$

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

I. $(0, 3)$

J. $(\frac{3}{2}, 0)$

$$b. y = \frac{2}{3}x + \frac{1}{2}$$

A. x	$\frac{2}{3}x + \frac{1}{2}$	y
-6	$-4 + \frac{1}{2}$	$-\frac{7}{2} = -3.5$
-3	$-2 + \frac{1}{2}$	$-\frac{3}{2} = -1.5$
0	$0 + \frac{1}{2}$	$\frac{1}{2}$
3	$2 + \frac{1}{2}$	$\frac{5}{2} = 2.5$
6	$4 + \frac{1}{2}$	$\frac{9}{2} = 4.5$

$$D. y = \frac{2}{3}x + \frac{1}{2}$$

or

$$f(x) = \frac{2}{3}x + \frac{1}{2}$$

$$E. m = \frac{2}{3}$$

$$G. D: \{-\infty < x < \infty\}$$

$$H. R: \{-\infty < y < \infty\}$$

$$(21) \quad A. \begin{array}{r} 15 = 3n + 6p \\ -6p \quad -6p \\ \hline 15 - 6p = 3n \\ \frac{15 - 6p}{3} = \frac{3n}{3} \\ \boxed{5 - 2p = n} \end{array}$$

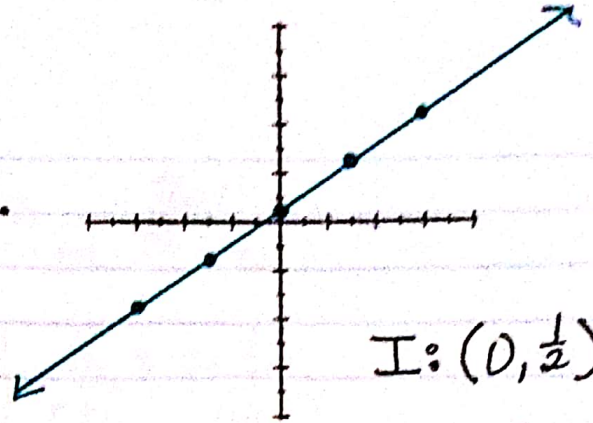
$$C. \frac{C}{2\pi} = \frac{2\pi r}{2\pi}$$

$$\boxed{\frac{C}{2\pi} = r}$$

$$D. \frac{D}{r} = \frac{rt}{r}$$

$$\boxed{\frac{D}{r} = t}$$

B.



$$I: (0, \frac{1}{2})$$

$$J: (-\frac{3}{4}, 0)$$

$$C. y = \frac{2}{3}x + \frac{1}{2}$$

$$-\frac{2}{3}x \quad -\frac{2}{3}x$$

$$-6(-\frac{2}{3}x + \frac{1}{2} = \frac{1}{2})$$

$$\boxed{4x - 6y = -3}$$

$$F. y = \frac{2}{3}x + \frac{1}{2} \quad \boxed{x = -\frac{3}{4}}$$

$$0 = \frac{2}{3}x + \frac{1}{2}$$

$$-\frac{1}{2} \quad -\frac{1}{2}$$

$$6(-\frac{1}{2} = \frac{2}{3}x)$$

$$-\frac{3}{1} = \frac{4x}{1}$$

$$B. a(q - 8) = 23$$

$$\frac{a(q - 8)}{a} = \frac{23}{a}$$

$$q - 8 = \frac{23}{a}$$

$$+8 \quad +8$$

$$\boxed{q = \frac{23}{a} + 8}$$

$$E. \frac{F}{a} = \frac{ma}{a}$$

$$\boxed{\frac{F}{a} = m}$$

$$F. \frac{P}{2} = \frac{2(L+W)}{2}$$

$$\frac{P}{2} = L+W$$

$$\begin{array}{r} -L \quad -L \\ \hline \end{array}$$

$$\boxed{\frac{P}{2} - L = W}$$

$$G. \frac{I}{rt} = \frac{prt}{rt}$$

$$\boxed{\frac{I}{rt} = P}$$

$$\textcircled{22} \quad \begin{array}{l} 1200 - 300 - 50X = y \\ 900 - 50X = y \end{array}$$

$$\bullet A. \quad \begin{array}{r} 900 - 50X = 0 \\ -900 \quad \quad -900 \\ \hline -50X = -900 \\ -50 \quad -50 \\ \hline X = 18 \end{array}$$

$$\bullet B. \quad \begin{array}{r} 1200 - 600 - 50X = y \\ 600 - 50X = y \\ 600 - 50X = 0 \\ -600 \quad \quad -600 \\ \hline -50X = -600 \\ -50 \quad -50 \\ \hline X = 12 \end{array}$$

$$\bullet C. \quad \begin{array}{r} 1200 - 300 - 75X = y \\ 900 - 75X = y \\ -900 \quad \quad -900 \\ \hline -75X = -900 \\ -75 \quad -75 \\ \hline X = 12 \end{array}$$

$$E. \quad \begin{array}{l} \text{Situation A: } D: \{0 \leq X \leq 18\} \\ \quad \quad \quad R: \{0 \leq y \leq 900\} \\ \text{Situation B: } D: \{0 \leq X \leq 12\} \\ \quad \quad \quad R: \{0 \leq y \leq 600\} \\ \text{Situation C: } D: \{0 \leq X \leq 12\} \\ \quad \quad \quad R: \{0 \leq y \leq 900\} \end{array}$$

27 A. $(x^{-2}x^{-3})^4$

$$\frac{x^{-8}x^{-12}}{x^8x^{12}} = \boxed{\frac{1}{x^{20}}}$$

B. $(x^4)^{-3} \cdot 2x^4$

$$\frac{x^{-12} \cdot 2x^4}{x^{12}} = \boxed{\frac{2}{x^8}}$$

C. $(n^3)^3 \cdot 2n^{-1}$

$$\frac{n^9 \cdot 2}{n} = \boxed{2n^8}$$

D. $(2v)^2 \cdot 2v^2$

$$\frac{4v^2 \cdot 2v^2}{1} = \boxed{8v^4}$$

28 A. $\frac{2y^3 \cdot 3xy^3}{3x^2y^4}$

$$\frac{6xy^6}{3x^2y^4}$$

$$\frac{2x^{-1}y^2}{\frac{2y^2}{x}} = \boxed{\frac{2y^2}{x}}$$

B. $\frac{2m^{-4}}{(2m^{-4})^3}$

$$\frac{2m^{-4}}{8m^{-12}}$$

m^{-4+12}
 m^8

$$\frac{2m^8}{8} = \boxed{\frac{m^8}{4}}$$

C. $\frac{3x^2y^2}{2x^{-1} \cdot 4yx^2}$

$$\frac{3x^2y^2}{8yx}$$

$$\frac{3x^{2-1}y^{2-1}}{8} = \boxed{\frac{3xy}{8}}$$

D. $\frac{x}{(2x^0)^2}$

$$\frac{x}{(2 \cdot 1)^2}$$

$$\frac{x}{2^2} = \boxed{\frac{x}{4}}$$

$$(29) \quad A. (a^{-3}b^{-3})^0$$

$$1$$

$$B. (2x^0y^2)^{-3} \cdot 2yx^3$$

$$(2y^2)^{-3} \cdot 2yx^3 \\ 2^{-3}y^{-6} \cdot 2yx^3$$

$$C. x^4y^3 \cdot (2y^2)^0$$

$$x^4y^3 \cdot 1$$

$$\boxed{x^4y^3}$$

$$\frac{2yx^3}{2^3y^6} = \frac{2yx^3}{8y^6}$$

$$\frac{2y^{1-6}x^3}{8} = \boxed{\frac{x^3}{4y^5}}$$

$$(35) \quad 5x - (2x + 7) = 2(3x - 14)$$

$$5x - 2x - 7 = 6x - 28$$

$$3x - 7 = 6x - 28$$

$$\begin{array}{r} +7 \qquad \qquad +7 \\ \hline \end{array}$$

$$3x = 6x - 21$$

$$\begin{array}{r} -6x \quad -6x \\ \hline \end{array}$$

$$\begin{array}{r} -3x = -21 \\ \hline \end{array}$$

$$\begin{array}{r} -3 \quad -3 \\ \hline \end{array}$$

$$\boxed{x = 7}$$

$$(36) \quad 3 \left(\frac{2}{3}(x-3) + \frac{1}{3}(x+6) = 18 \right)$$

$$2(x-3) + 1(x+6) = 54$$

$$2x \text{ (cancel)} + x \text{ (cancel)} = 54$$

$$\begin{array}{r} 3x = 54 \\ \hline 3 \quad 3 \end{array}$$

$$x = 18$$

$$(37) \quad -(6x-4) + 5(2x+3)$$

$$-6x + 4 + 10x + 15$$

$$\boxed{4x + 19}$$

$$(38) \quad -2(3x-1) - 4(-x+1)$$

$$-6x + 2 + 4x - 4$$

$$-2x - 2$$

$$(39) \quad (8, 5) \text{ and } (3, 0)$$

$$\frac{0-5}{3-8} = \frac{-5}{-5} = 1$$

$$\begin{array}{r} y-5 = 1(x-8) \\ y-5 = x-8 \\ \quad +5 \quad \quad +5 \\ \hline y = x-3 \end{array}$$

$$(40) \quad (-2, 7) \text{ and } (0, 5)$$

$$\frac{5-7}{0+2} = \frac{-2}{2} = -1$$

$$\begin{array}{r} y-5 = -1(x-0) \\ y-5 = -x \\ \quad +5 \quad \quad +5 \\ \hline y = -x+5 \end{array}$$

$$(41) \quad y+2 = 3(x+3)$$

$$y+2 = 3x+9$$

$$\quad -2 \quad \quad -2$$

$$\hline y = 3x+7$$

$$(42) \quad y-2 = -\frac{3}{2}(x-4)$$

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

$$\quad +2 \quad \quad +2$$

$$\hline y = -\frac{3}{2}x+8$$

$$(43) \quad \{(0, -2), (1, 1), (3, 7)\}$$

$$\frac{1+2}{1-0} = \frac{3}{1} = 3 \quad y = 3x-2$$

56) A. $y = 2x + 7$ (0,0)

$$m = 2 \xrightarrow{\perp} -\frac{1}{2} \quad y - 0 = -\frac{1}{2}(x - 0)$$

$$y = -\frac{1}{2}x$$

$$\begin{array}{r} \text{B. } 4x - 2y = 9 \\ \quad +2y \quad +2y \\ \hline 4x = 9 + 2y \end{array}$$

$$\begin{array}{r} -9 \quad -9 \\ \hline 4x - 9 = 2y \\ \quad 2 \quad 2 \end{array}$$

$$2x - \frac{9}{2} = y$$

$$m = 2 \xrightarrow{\perp} -\frac{1}{2}$$

$$y + 2 = -\frac{1}{2}(x - 8)$$

$$y + 2 = -\frac{1}{2}x + 4$$

$$\begin{array}{r} -2 \quad -2 \\ \hline y = -\frac{1}{2}x + 2 \end{array}$$

C. $y = 56$

$$y = 0x + 56$$

(3,5)



when $x = 3$

$$m = 0 \xrightarrow{\perp} \text{undefined}$$

60) $-4x + 3y = -6$ (-1,1)

$$\begin{array}{r} -4x + 3y = -6 \\ +4x \quad +4x \\ \hline 3y = 4x - 6 \\ \quad 3 \quad 3 \end{array}$$

$$y = \frac{4}{3}x - 2$$

$$y - 1 = \frac{4}{3}(x + 1)$$

$$\begin{array}{r} y - 1 = \frac{4}{3}x + \frac{4}{3} \\ +1 \quad +1 \\ \hline \end{array}$$

$$y = \frac{4}{3}x + \frac{7}{3}$$

$$B. y = \frac{1}{5}x + 5 \quad (2, -1)$$

$$y + 1 = \frac{1}{5}(x - 2)$$

$$y + 1 = \frac{1}{5}x - \frac{2}{5}$$

$$\frac{-1}{-1} \qquad \frac{-2}{5} \frac{-1}{-1}$$

$$y = \frac{1}{5}x - \frac{7}{5}$$

$$C. y = 2 \quad (-3, 3)$$

$$y = 0x + 2$$

$$y - 3 = 0(x + 3)$$

$$y - 3 = 0x$$

$$\frac{+3}{+3} \qquad \frac{+3}{+3}$$

$$y = 0x + 3$$

$$y = 3$$

$$D. y = 0.75 \quad (0, 1)$$

$$y = 0x + 0.75$$

$$y - 1 = 0(x - 0)$$

$$y - 1 = 0x$$

$$\frac{+1}{+1} \qquad \frac{+1}{+1}$$

$$y = 0x + 1$$

$$y = 1$$