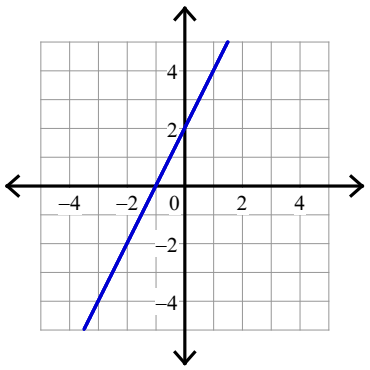
Algebra 1 Name_____

Final Exam Review Semester 1

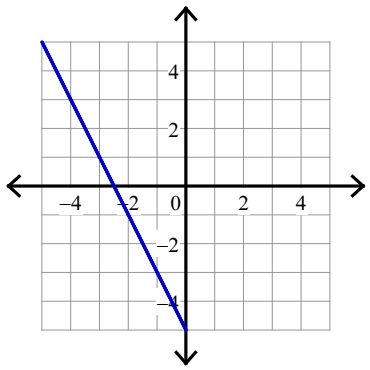
Date_____ Period____

Write the slope-intercept form of the equation of each line.

1)



2)



Find the next 3 numbers in the pattern.

3) 2, 5, 8, 11...

4) 1, 3, 7, 15...

Evaluate each using the values given.

5) $(y + x)^2 - x \div 3$; use $x = -9$, and $y = 10$

6) $n\left(m^2 + 5 - 6p\right)$; use $m = 2$, $n = -8$, and $p = \frac{1}{3}$

Evaluate each expression.

7) $(13 - 5) \div (5 - 1)$

8) $(5 + 3) \times 10 \div 2$

9) $2 \cdot 4^2 - (7 - 9)$

10) $3 \cdot 3^2(2 + 3)$

Solve the following. (Set up a proportion.)

11) There are 150 calories in 3 cookies. How many calories are there in 5 cookies?

12) A map is scaled so that 2 inches on the map represents 150 miles. Your trip is 7 inches on the map. How many miles will you be traveling?

Solve each proportion.

13) $\frac{9}{3} = \frac{n}{7}$

14) $\frac{6}{9} = \frac{n}{10}$

15) $\frac{6}{8} = \frac{x-4}{2}$

16) $\frac{6}{8} = \frac{k+6}{k}$

Solve each equation.

17) $3 + 2b + 3 - 8 = 4b + 2$

18) $4m + 2 = 9 + 3m$

19) $3(b - 1) = 9$

20) $-24 = 4v - 2(4v + 2)$

21) $-6(3x - 6) - 8 = 4 + 6x$

22) $22 - 6m = -2 - 6(2m + 3)$

23) $4 - 7(8 + 4p) = 8(-5p - 5)$

24) $2(8a - 7) + 2a = -(a - 5)$

Solve each inequality.

25) $-56 > 8(4k - 3)$

26) $-5v - (6v + 7) \leq -18$

27) $52 \leq -4(5 + 6x)$

28) $-36 + 8m \geq -6(7m + 6)$

29) $-4 - 6n > 4(1 - n)$

30) $-4(x + 7) - 3 \geq -15 - 8x$

Find the following.

31) If $f(x) = 3x + 7$ find $f(6)$

32) If $g(x) = x^2 - 4$ find $g(-2)$

33) If $f(x) = -3x + 1$ find $f(3)$

Solve each compound inequality.

34) $-76 < 10n + 4 \leq 54$

35) $-9a - 9 < 81$ and $-5a - 8 \geq 22$

36) $-7 + 6a \le -4a - 7 \le 2 - a$

37) $9 - 7p \ge 5p - 3$ and $6p - 1 \le 7p + 7$

Solve for the variable.

38) $4 = 5 - \frac{k}{4}$

39) $\frac{y + 30}{5} = -7$

Find the slope of the line through each pair of points.

40) (–8, 12), (–17, –2)

41) (–1, 13), (–17, 15)

Write the slope-intercept form of the equation of the line through the given points.

42) through: (–2, 5) and (4, 2)

43) through: (–2, 0) and (–4, 5)

44) through: (–3, –1) and (0, –5)

45) through: (4, 4) and (–5, –5)

Write the point-slope form of the equation of the line through the given point with the given slope.

46) through: (–1, 3), slope $= \frac{1}{2}$

47) through: (3, –2), slope $= -\frac{2}{3}$

Write the slope-intercept form of the equation of each line given the slope and y-intercept.

48) Slope = 3, y-intercept = 1

49) Slope = $-\frac{1}{5}$, y-intercept = –3

50) Solve the equation $y = 2x + 4$ if the domain is {-2, 0, -1, 4, 5}. Write your answer as a list of ordered pairs.

Simplify each expression.

51) $3 - 9(r - 4)$

52) $6b - 8(b + 1)$

53) $-3 + 10x - x$

54) $-2 - 5n - 6 + n^2 - 4n + 3n^2$

55) $(9x + 1) \cdot 6$

56) $-(-4 + 6b)$

Determine if the following is a function. Explain why or why not.

57) {(-2, 7), (-4, 6), (3, -5), (7, -5)}

58) {(-4, 0), (-3, -5), (0, -1), (-3, 8)}

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Write the slope-intercept form of the equation of each line.

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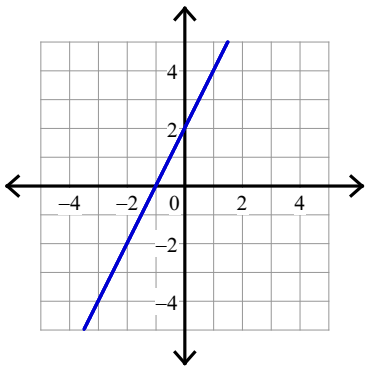
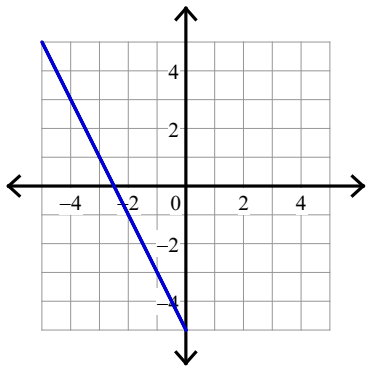


$y = 2x + 2$

2)



$y = -2x - 5$

Find the next 3 numbers in the pattern.

3) 2, 5, 8, 11...

14, 17, 20

4) 1, 3, 7, 15...

31, 63, 127

Evaluate each using the values given.

5) $(y + x)^2 - x \div 3$; use $x = -9$, and $y = 10$

4

6) $n\left(m^2 + 5 - 6p\right)$; use $m = 2$, $n = -8$, and $p = \frac{1}{3}$

-56

Evaluate each expression.

7) $(13 - 5) \div (5 - 1)$

2

8) $(5 + 3) \times 10 \div 2$

40

9) $2 \cdot 4^2 - (7 - 9)$

34

10) $3 \cdot 3^2(2 + 3)$

135

Solve the following. (Set up a proportion.)

11) There are 150 calories in 3 cookies. How many calories are there in 5 cookies?

There are 250 calories in 5 cookies.

12) A map is scaled so that 2 inches on the map represents 150 miles. Your trip is 7 inches on the map. How many miles will you be traveling?

Your trip is 525 miles.

Solve each proportion.

13) $\frac{9}{3} = \frac{n}{7}$

{21}

14) $\frac{6}{9} = \frac{n}{10}$ {6.66} or $\{\frac{20}{3}\}$

15) $\frac{6}{8} = \frac{x-4}{2}$

{5.5}

16) $\frac{6}{8} = \frac{k+6}{k}$

{−24}

Solve each equation.

17) $3 + 2b + 3 - 8 = 4b + 2$

{−2}

18) $4m + 2 = 9 + 3m$

{7}

19) $3(b - 1) = 9$

{4}

20) $-24 = 4v - 2(4v + 2)$

{5}

21) $-6(3x - 6) - 8 = 4 + 6x$

{1}

22) $22 - 6m = -2 - 6(2m + 3)$

{−7}

23) $4 - 7(8 + 4p) = 8(-5p - 5)$

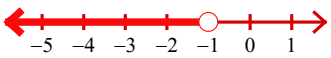
{1}

24) $2(8a - 7) + 2a = -(a - 5)$

{1}

Solve each inequality.

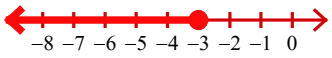
25) $-56 > 8(4k - 3)$

$k < -1$: 

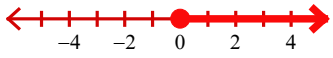
26) $-5v - (6v + 7) \leq -18$

$v \geq 1$: 

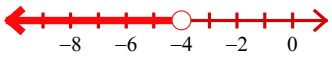
27) $52 \leq -4(5 + 6x)$

$x \leq -3$: 

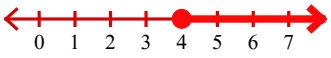
28) $-36 + 8m \geq -6(7m + 6)$

$m \geq 0$: 

29) $-4 - 6n > 4(1 - n)$

$n < -4$: 

30) $-4(x + 7) - 3 \geq -15 - 8x$

$x \geq 4$: 

Find the following.

31) If $f(x) = 3x + 7$ find $f(6)$

$f(6)=25$

32) If $g(x) = x^2 - 4$ find $g(-2)$

$g(-2) = 0$

33) If $f(x) = -3x + 1$ find $f(3)$

$f(3) = -8$

Solve each compound inequality.

34) $-76 < 10n + 4 \leq 54$

$-8 < n \leq 5$

35) $-9a - 9 < 81$ and $-5a - 8 \geq 22$

$-10 < a \leq -6$

36) $-7 + 6a \le -4a - 7 \le 2 - a$

$-3 \le a \le 0$

37) $9 - 7p \ge 5p - 3$ and $6p - 1 \le 7p + 7$

$-8 \le p \le 1$

Solve for the variable.

38) $4 = 5 - \frac{k}{4}$

{4}

39) $\frac{y + 30}{5} = -7$

{-65}

Find the slope of the line through each pair of points.

40) (–8, 12), (–17, –2)

$\frac{14}{9}$

41) (–1, 13), (–17, 15) $-\frac{1}{8}$

Write the slope-intercept form of the equation of the line through the given points.

42) through: (–2, 5) and (4, 2)

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

43) through: (–2, 0) and (–4, 5) $y = -\frac{5}{2}x - 5$

44) through: (–3, –1) and (0, –5)

$y = -\frac{4}{3}x - 5$

45) through: (4, 4) and (–5, –5)

$y = x$

Write the point-slope form of the equation of the line through the given point with the given slope.

46) through: (–1, 3), slope $= \frac{1}{2}$

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

47) through: (3, –2), slope $= -\frac{2}{3}$ $y + 2 = -\frac{2}{3}(x - 3)$

Write the slope-intercept form of the equation of each line given the slope and y-intercept.

48) Slope = 3, y-intercept = 1

$y = 3x + 1$

49) Slope = $-\frac{1}{5}$, y-intercept = –3 $y = -\frac{1}{5}x - 3$

50) Solve the equation $y = 2x + 4$ if the domain is {-2, 0, -1, 4, 5}. Write your answer as a list of ordered pairs.

{(-2, 0), (0, 4), (-1, 2), (4, 12), (5, 14)}

Simplify each expression.

51) $3 - 9(r - 4)$

$39 - 9r$

52) $6b - 8(b + 1)$

$-2b - 8$

53) $-3 + 10x - x$

$-3 + 9x$

54) $-2 - 5n - 6 + n^2 - 4n + 3n^2$

$4n^2 - 9n - 8$

55) $(9x + 1) \cdot 6$

$54x + 6$

56) $-(-4 + 6b)$

$4 - 6b$

Determine if the following is a function. Explain why or why not.

57) {(-2, 7), (-4, 6), (3, -5), (7, -5)}

Yes because each x value goes to only 1 y-value.

58) {(-4, 0), (-3, -5), (0, -1), (-3, 8)}

No, because the x-value of -3 goes to both -5 and 8.