

1st Semester Exam Review Multiple Choice

1. Solve the following equation for the variable x : $y = ax - b$

- (A) $x = y + \frac{b}{a}$ (B) $x = \frac{a+b}{y}$
(C) $x = \frac{y+b}{a}$ (D) $x = \frac{y}{a} + b$

2. What is the value of x in this equation? $\frac{4}{5}x - 8 = 16$

- (A) 28 (B) 30 (C) 10 (D) -1

3. To solve the equation $\frac{1}{3}(x + 9) = 27$, Mark distributes the $\frac{1}{3}$ first while Molly multiplies both sides by 3 first. Which of the following statements is correct?

- (A) Mark is correct (B) Both Mark and Molly are correct
(C) Molly is correct (D) Neither Mark nor Molly are correct

4. What is the solution of $-3k + 4 = -2 - 6k$?

- (A) -2 (B) $\frac{2}{3}$ (C) 2 (D) $-\frac{2}{9}$

5. Solve the inequality: $4(x + 3) - 7 \geq x + 3(x + 1)$

- (A) $x \leq 5$ (B) $x \geq 3$
(C) no solution (D) all real numbers

6. Solve the compound inequality: $3x - 4 > 5$ or $1 - 2x \geq 7$

- (A) $x < -3$ or $x \geq 3$ (B) $x \leq -3$ or $x > 3$
(C) $x \geq -3$ or $x < 3$ (D) $x > -3$ or $x \leq 3$

7. Which compound inequality describes the solutions graphed below?



- (A) $x > 5$ or $x \leq 9$ (B) $5 \leq x \leq 9$
(C) $5 < x \leq 9$ (D) $x < 5$ or $x \leq 9$

8. The absolute value equation for the range in temperatures, x , on Thursday, is expressed as $|x - 45| = 20$. The high and low temperatures on Thursday are:

- (A) $x = 25^\circ$ (B) $x = 65^\circ$ and $x = 25^\circ$
(C) $x = 65^\circ$ (D) $x = 75^\circ$ and $x = 65^\circ$

9. Find all real solutions to the absolute value equation, $-4|x + 6| = -20$

- (A) $x = -1, x = 1$ (B) no solution
(C) $x = 11, x = -11$ (D) $x = -1, x = -11$

10. Solve the absolute value inequality, $|2x + 4| \leq 12$

- (A) $x \leq -4$ or $x \geq -8$ (B) $4 \leq x \leq -8$
(C) $-8 \leq x \leq 4$ (D) $-2 \leq x \leq 10$

11. How many solutions does the linear system $3x + 5y = 8$ and $5y = -3x + 8$ have?

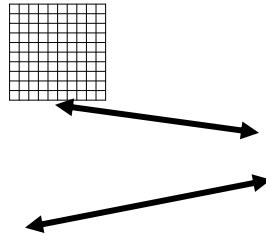
- [A] 0 [B] 2 [C] 1 [D] infinitely many

12. Which ordered pair is a solution of the system $x + 2y = -2$ and $y = -3x + 4$?

- [A] (0, 0) [B] (-2, 2) [C] (2, -2) [D] (5, -4)

13. How many solutions does the system of linear equations whose graph is shown have?

- [A] 0
- [B] 1
- [C] 2
- [D] infinitely many

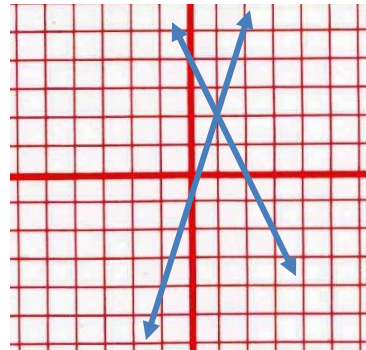


14. How many solutions does the linear system have? $3x - 11y = 4$
 $-3x + 11y = 2$

- [A] none
- [B] exactly one
- [C] two
- [D] infinitely many

15. Which system has the solution shown in the graph?

- [A] $y = -3x - 1$
 $y = 2x + 4$
- [B] $y = -2x - 4$
 $y = 3x + 1$
- [C] $y = -\frac{1}{2}x + 4$
 $y = \frac{1}{3}x - 1$
- [D] $y = -2x + 4$
 $y = 3x - 1$



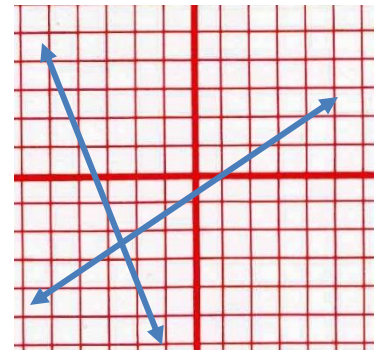
16. What is the value of x in this equation?

$$5x - 2(2x - 1) = 6$$

- (A) 3
- (B) 7
- (C) 4
- (D) 8

17. Which ordered pair is the solution to the shown system?

- [A] $(-3, -3)$
- [B] $(-2.5, -2.5)$
- [C] $(3, 1)$
- [D] $(-3, -1)$



18. The food booth at a fair charges \$1.50 for each taco and \$2.00 for each slice of pizza. If Jake spent \$12.00 on 7 of these food items which system could be used to determine how many of each he bought?

- [A] $y = 1.50x + 7$
 $y = 2x + 12$
- [B] $y = 1.50x + 7$
 $y = 2x + 12$
- [C] $x + y = 7$
 $1.5x + 2y = 12$
- [D] $x + y = 12$
 $1.5x + 2y = 7$

19. Which of the sets shown includes the elements of Set Z that are both odd numbers and multiples of 5? $Z = \{-15, -12, -10, 2, 7, 10, 20\}$

- (A) $\{-15\}$
- (B) $\{-15, -10, 10, 20\}$
- (C) $\{-15, -10, 7, 10, 20\}$
- (D) $\{-12, -10, 7, 10, 20\}$

20. Which of the following will result in a rational number? Select all that apply.

- (A) $6\frac{4}{5} + \frac{\sqrt{9}}{4}$
- (B) $6\frac{4}{5} \div \frac{\sqrt{9}}{7}$
- (C) $6\frac{4}{5} - \frac{\sqrt{5}}{7}$
- (D) $6\frac{4}{5} \cdot \frac{\sqrt{5}}{4}$

21. Solve the equation?

$$\frac{1}{4}(4x - 16) = x - 4$$

- (A) 4
- (B) 0
- (C) infinitely many solutions
- (D) no solution

22. How many solutions are there to this equation?

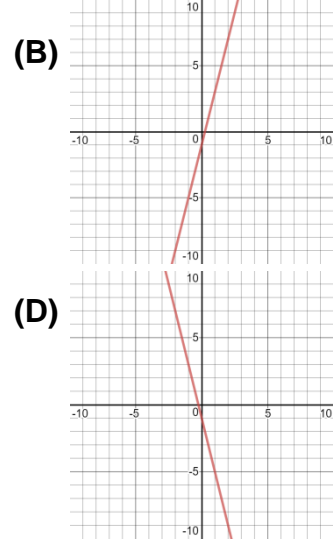
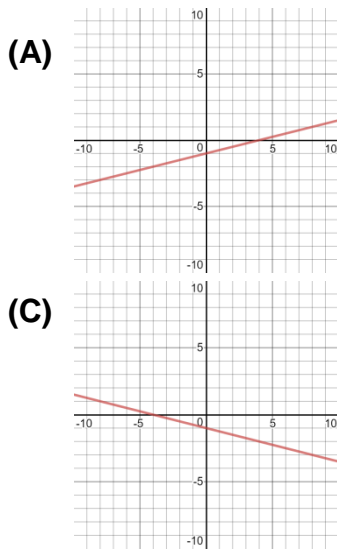
$$7x - 3(x - 1) = 2(2x + 3)$$

- (A) exactly one solution
- (B) infinitely many solutions
- (C) at least two solutions
- (D) no solution

23. What is the slope-intercept form of an equation for a line with a y-intercept of -4 and a slope of 2?

- (A) $y = -4x + 2$
- (B) $y = -2x - 4$
- (C) $y = 2x - 4$
- (D) $2x - 4y = -8$

24. Which of the following is the graph of $y = -4x - 1$?



25. Which of the following is the slope of the line through the points $(-5, 2)$ and $(3, -4)$?

- (A) $-\frac{3}{4}$ (B) $\frac{3}{4}$ (C) $\frac{4}{3}$ (D) $-\frac{4}{3}$

26. What is the slope in the equation $8y - 2x = 16$?

- (A) 8 (B) -2 (C) 4 (D) $\frac{1}{4}$

27. Which of the following is an equation of the line that passes through $(2, 3)$ and $(-1, -12)$?

- (A) $y = \frac{1}{5}x + \frac{13}{5}$ (B) $y = 5x - 7$
(C) $y = 5x + 7$ (D) $y = -\frac{1}{5}x + \frac{17}{5}$

28. What is an equation of the horizontal line passing through the point $(5, -7)$?

- (A) $y = 5$ (B) $x = -7$ (C) $y = -7$ (D) $x = 5$

29. What is an equation in **point-slope form** that passes through the point $(4, -1)$ and has slope of 6?

- (A) $y + 1 = -6(x - 4)$ (B) $y - 1 = 6(x + 4)$

(C) $y - 1 = -6(x + 4)$

(D) $y + 1 = 6(x - 4)$

30. Which equation written in **slope-intercept form** represents the linear function shown in the table?

(A) $y = \frac{1}{4}x + 8$

(B) $y = -4x + 8$

(C) $y = 4x + 2$

(D) $y = -4x + 2$

x	y
-3	20
-2	16
-1	12
0	8
2	0

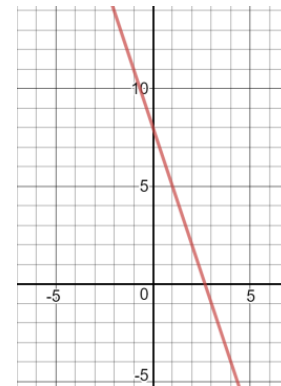
31. What is an equation in **point-slope form** of the line shown in the graph to the right using the point (2,2)?

(A) $y + 2 = -3(x + 2)$

(B) $y - 2 = 3(x - 2)$

(C) $y - 2 = -3(x - 2)$

(D) $y + 2 = -3(x - 2)$



32. What is an equation in **point-slope form** that passes through the points (4, -1) and (2, 5)?

(A) $y + 1 = -3(x - 4)$

(B) $y + 1 = 3(x - 4)$

(C) $y - 1 = -3(x + 4)$

(D) $y - 1 = 3(x + 4)$

33. To write the equation of the line in point-slope form through the points (4, 2) and (-3, -1), Eddie

performs the following steps:

$$m = \frac{-3-4}{-1-2} = \frac{-7}{-3} = \frac{7}{3} \rightarrow y - 2 = \frac{7}{3}(x - 4)$$

What, if any, mistake did Eddie make while writing this equation?

(A) Eddie is correct, no mistakes were made

(B) Eddie calculated the slope incorrectly

(C) Eddie did not use the point (-3, -1) in his equation

(D) Eddie did not use point-slope form

34. What is the equation in standard form of the line $y = \frac{1}{9}x + 5$?

- (A) $-x + 9y = 45$ (B) $x = 9y - 45$ (C) $9y = x + 45$ (D) $-x + 9y = 5$

35. Given the equation, $y = -8x + 1$, which statement below is **true**?

- (A) The y-intercept of the line is (0,-8) (B) The slope of the line is 1
(C) The y-intercept of the line is (0,-1) (D) The slope of the line is -8

36. Given a line passes through (-3, -8) and (2, 2) which of the following statements is **NOT TRUE**?

- (A) The slope-intercept form of the equation is $y = 2x - 2$
(B) The slope of the line is 2
(C) The y-intercept of the line is (0,-2)
(D) The point-slope form of the equation is $y - 8 = 2(x - 3)$

37. What are the x-intercept and y-intercept of the graph of $9x - 7y = -63$?

- (A) $x - \text{intercept}: 7; y - \text{intercept}: -9$ (B) $x - \text{intercept}: 9; y - \text{intercept}: -7$
(C) $x - \text{intercept}: -9; y - \text{intercept}: 7$ (D) $x - \text{intercept}: -7; y - \text{intercept}: 9$

38. Derek has \$20 to spend on used books. Hardcover books cost \$5 each and paperbacks cost \$2 each. What equation in standard form determines the number x , of hardcover books and the number, y , of paperbacks he can buy?

- (A) $2x + 5y = 20$ (B) $3x + 7y = 20$ (C) $5x + 2y = 20$ (D) $7x + 3y = 20$

39. For the situation in problem 38, which of the following represents a possible combination books that Derek can buy? **SELECT ALL THAT APPLY.**

- (A) (-2, 15) (B) (0,10) (C) (2, 5) (D) (3, 2.5)

40. Which lines are parallel to $8x + 2y = 7$? **SELECT ALL THAT APPLY.**

(A) $y - 1 = 4(x + 8)$

(B) $16x + 4y = 9$

(C) $y = -4x + 15$

(D) $y = -4x$

41. What is the equation in slope-intercept form that passes through $(6, -11)$ and is perpendicular to the line $y = -\frac{2}{3}x + 12$?

(A) $y = \frac{3}{2}x - 20$

(B) $y = -\frac{2}{3}x - 7$

(C) $y = -\frac{2}{3}x - 20$

(D) $y = \frac{3}{2}x + 7$

42. A dance studio charges \$450 annual tuition plus a \$15 fee for each class you attend.

If you pay \$1,050 for the year, how many classes did you take?

(A) 50 classes

(B) 65 classes

(C) 35 classes

(D) 40 classes

43. Describe how the graph of the function $g(x) = 2x + 6$ compares to the graph of the function $f(x) = 2x$.

(A) $g(x)$ is shifted left 6

(B) $g(x)$ is shifted up 6

(C) $g(x)$ is shifted down 6

(D) $g(x)$ is shifted right 6

44. Describe how the function $g(x) = 3x - 5$ compares to the parent function $f(x) = x$.

(A) Vertical stretch by a scale factor of 3 and shifted down 5

(B) Vertical shrink by a scale factor of 3 and shifted down 5

(C) Vertical shrink by a scale factor of 5 and shifted down 3

(D) Vertical shrink by a scale factor of 5 and shifted up 3

45. Use $a_n = a_1 + d(n - 1)$ to write the explicit formula given the arithmetic sequence:

2, 7, 12, 17, ...

(A) $a_n = 5n + 2$

(B) $a_n = 5n - 3$

(C) $a_n = 5n + 3$

(D) $a_n = 2n + 7$

46. Use $a_n = a_1 + d(n - 1)$ to write the explicit formula given the arithmetic sequence:

$$3, -1, -5, -9, \dots$$

(A) $a_n = 4n - 1$

(B) $a_n = -4n - 1$

(C) $a_n = -4n + 3$

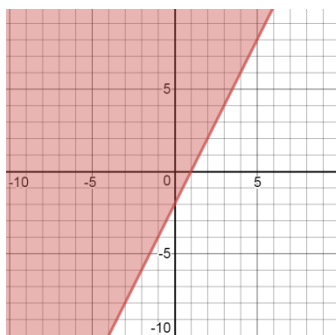
(D) $a_n = -4n + 7$

47. The linear system $\begin{cases} 4x + 2y = 10 \\ y = -2x + 5 \end{cases}$ has how many solutions?

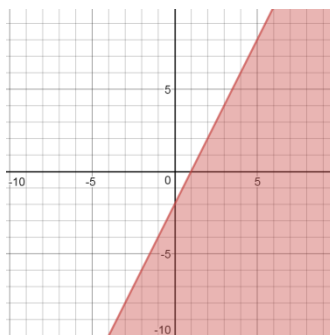
(A) Two (B) One (C) None (D) Infinite

48. Choose the correct graph for $y \leq 2x + 2$.

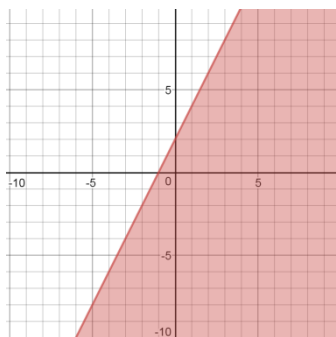
(A)



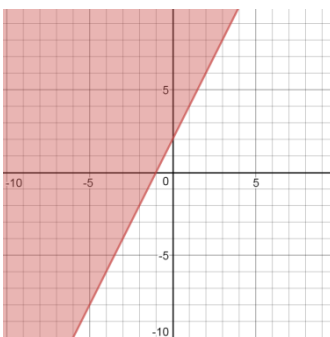
(B)



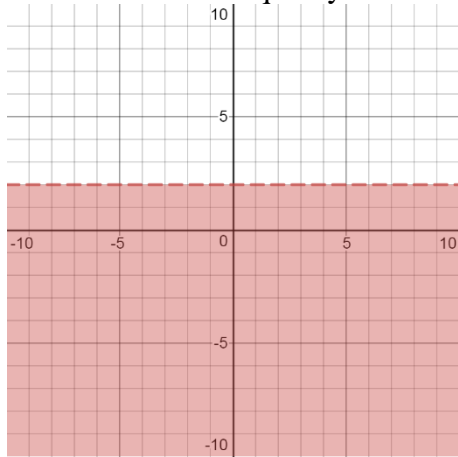
(C)



(D)

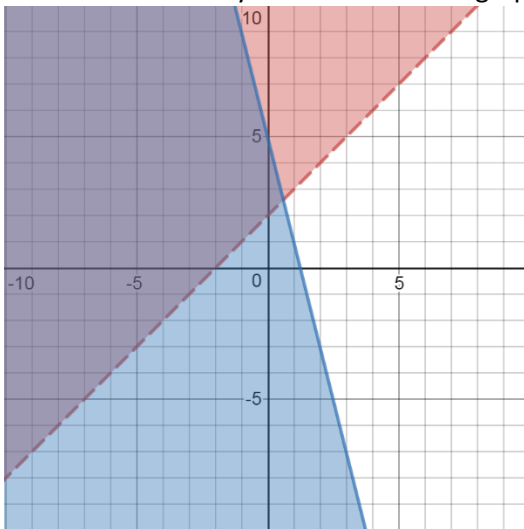


49. Write the linear inequality shown in the graph.



- (A) $x < 2$ (B) $x \leq 2$ (C) $y < 2$ (D) $y > 2$

50. Write the linear system shown in the graph.



- (A) $y < -x + 2$
 $y \geq 4x + 5$
- (B) $y > x + 2$
 $y \leq -4x + 5$
- (C) $y < -x + 2$
 $y < 4x + 5$
- (D) $y > x - 2$
 $y \leq -4x - 5$

ANSWERS:

1. C
2. B
3. B
4. A
5. D
6. B
7. C
8. B
9. D
10. C
11. D
12. C
13. B
14. A
15. D
16. C
17. B
18. C
19. A
20. C, D
21. C
22. D
23. C
24. D
25. A
26. D
27. B
28. C
29. D
30. B
31. C
32. A
33. B
34. A
35. D
36. D
37. D
38. C
39. C
40. B, C, D
41. A
42. D
43. B
44. A

45. B
46. D
47. D
48. C
49. C
50. B