

LESSON 82 Review: Linear Equations and Inequalities

Try to complete as fast as you can. You may use a calculator unless otherwise specified.

1. $3 \times 4 - (6 - 2)^2 \div 8$

What is the value of the expression above? Do not use a calculator.

2. $3(x - 2) + 2a = a - x$

If $a = 2$ in the equation above, what value of x satisfies the equation?

3. $\frac{1}{6} + \frac{1}{4}x = \frac{1}{3}x$

What is the solution to the equation above?

4. Which equation has no solution?

- A) $x = 4 - x$
- B) $x = x + 7$
- C) $x - 1 = x - 1$
- D) $x + 1 = 1 - x$

5. $9 - 2x > x + 3$

Which value is a solution to the inequality above? Select all that apply.

- A) 0
- B) 1
- C) 2
- D) 3

6. $3 \leq 3 - 4x < 5$

What values of x satisfy the inequality above?

7. $2|x + 1| - 5 = 3$

What is the positive solution to the equation above?

8. $2|x| + 6 \leq 4$

How many solutions does the inequality above has?

- A) zero
- B) one
- C) two
- D) infinitely many

9. Amber bought a shirt at \$24. The price was 20% off the regular price. What was the regular price?

10. Victor is seven years older than Carol. Three years ago, Victor was twice as old as Carol. How old are they now?

11. Scott scored 90, 84, and 92 points on his first three quizzes. What must he score on his fourth quiz to average at least 90?

12. A line passes through $(0, -2)$ and $(2, 4)$. Write its equation in slope-intercept form.

13. Which line is parallel to the x -axis and passes through $(1, 3)$?

A) $x = 1$ B) $x = 3$
C) $y = 1$ D) $y = 3$

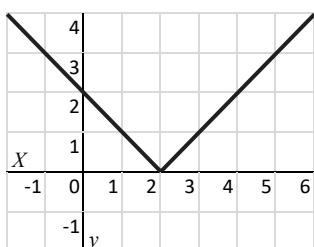
14. A line is parallel to $y = -2x + 1$ and has a y -intercept of 3. If the line passes through $(k, -1)$, what is the value of k ?

15. A line is perpendicular to $x - 3y = 6$ and passes through $(1, -2)$. Write its equation in slope-intercept form.

16. $x + y < 1$

Graph the inequality above.

17. Which equation is graphed below?



A) $y = |x| - 2$ B) $y = |x - 2|$
C) $y = |x| + 2$ D) $y = |x + 2|$

18. An airplane 30,000 feet above the ground begins descending at an average speed of 1,200 feet per minute. Which equation represents the altitude, y , of the plane after x minutes?

A) $y = 1200x$
B) $y = 30000 - x$
C) $y = 30000 - 1200x$
D) $y = 1200(3000 - x)$

19. A restaurant has x tables that seat 4 people and y tables that seat 6 people. The restaurant can seat a total of 88 people. If 8 tables seat 6 people, how many tables seat 4 people?

20. A farmer wants to build a rectangular pen using no more than 200 feet of fencing. If the length of the pen is 60 feet, what is the maximum possible width?

21. (CHALLENGE) What are the possible values of $x + y$ if $3 < 3x < 9$ and $1 < -y < 6$?

22. (CHALLENGE) What is the area of the triangle formed by the lines $y = 1$ and $y = -|x| + 3$?