LESSON 164 Review: Linear Equations and Inequalities

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

1. $(9-1) \div 2^2 \times (-2)^4$

Evaluate the expression above. Do not use a calculator.

2. $4x - 1 = 7$

Given the equation above, what is the value of $2x + 5$?

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

What value of x satisfies the equation above?

4. Which equation has no solution?

A) $x = 2x - 3$

B) $2x + 1 = x + 2$

C) $x - 1 = 2x - 2$

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

5. If x is an integer such that $5x - 4 \geq 1$ and $2x + 1 < 5$, what is the value of x ?

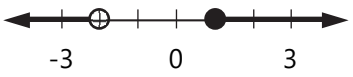
A) 0 B) 1

C) 2 D) 3

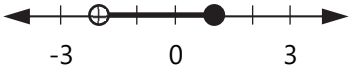
6. $4x + 1 < -7$ or $-2x + 3 \geq 1$

Which graph shows all the values of x that satisfy the inequality above?

A)



B)



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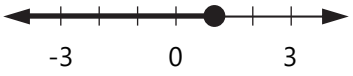
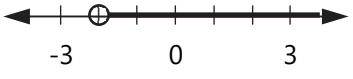


D)



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

What is the sum of the solutions to the equation above?

8. Which inequality has no solution?

A) $|x - 2| < 1$ B) $|x - 2| < -1$

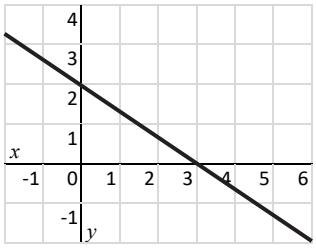
C) $|x - 2| \geq 1$ D) $|x - 2| \geq -1$

9. The sum of three consecutive even integers is 24. Find the integers.

10. Emma has \$2.50 in quarters and dimes. She has three more quarters than dimes. How many quarters does she have?

11. A line passes $(0, -3)$ and $(1, 1)$. What is the slope of the line?

12. Write an equation of the line graphed below in standard form.

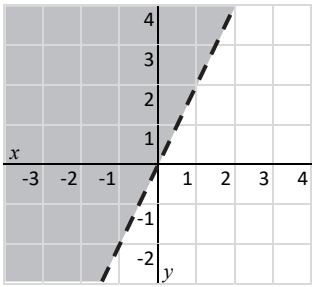


13. Which line is parallel to $y = 2x + 1$ and passes through $(2, 0)$?

A) $2x - y = 2$ B) $2x - y = 4$

C) $x - 2y = 2$ D) $x - 2y = 4$

14. Which inequality is graphed below?



A) $y < 2x$ B) $y \leq 2x$

C) $y > 2x$ D) $y \geq 2x$

15. $y = -|x + 1| + 2$

Graph the equation above. Then state the vertex and intercepts.

16. A water tank with 200 gallons of water is being emptied at a rate of 8 gallons per minute. Write an equation representing the amount of water, y, in the tank after x minutes.

17. At a festival, a group of people bought 7 adult tickets at $\$x$ each and 5 child tickets at $\$y$ each. Write an expression representing the total amount of money that the group spent in terms of x and y.

18. An online bookstore sells posters for $\$6$ each. The shipping cost per order is $\$7$. Chris wants to buy some posters using a gift card worth $\$50$. Which inequality models this situation?

A) $6x + 7 < 50$

B) $6x + 7 \leq 50$

C) $6(x + 7) < 50$

D) $6(x + 7) \leq 50$

19. (CHALLENGE) What are the possible values of $x + 6$ if $|2x - 3|$ is less than or equal to 5 ?

20. (CHALLENGE) A line passing through the points $(0, 4)$ never intersects $4x + y = 0$. Which quadrants does the line pass through?