Algebra 2 Pre-Req Review

What is the slope of the line that passes through the given points?

1. (–12, 12) and (2, 4)
   a. \(-\frac{4}{7}\)  
   b. \(\frac{7}{4}\)
   c. \(\frac{4}{7}\)
   d. \(\frac{7}{4}\)

2. (7, –9) and (7, –1)
   a. undefined
   b. 0
   c. \(-\frac{5}{7}\)
   d. \(-\frac{7}{5}\)

What is an equation of the line in slope intercept form?

3. \(m = \frac{1}{2}\) and the \(y\)-intercept is (0, –2)
   a. \(y = -2x + \frac{1}{2}\)
   b. \(y = \frac{1}{2}x + 2\)
   c. \(y = \frac{1}{2}x - 2\)
   d. \(y = 2x - \frac{1}{2}\)

4. a. \(y = 5x + 4\)
   b. \(y = -5x + 4\)
   c. \(y = 4x - 5\)
   d. \(y = 4x + 5\)
Write the equation in slope-intercept form. What are the slope and y-intercept?

5. \(-8x + 3y = -10\)

a. \(y = \frac{8}{3}x + \frac{10}{3};\)
   slope: \(\frac{10}{3};\) y-intercept: \(\frac{8}{3}\)

b. \(y = \frac{8}{3}x - \frac{10}{3};\)
   slope: \(\frac{8}{3};\) y-intercept: \(-\frac{10}{3}\)

c. \(y = \frac{8}{3}x - \frac{10}{3};\)
   slope: \(\frac{8}{3};\) y-intercept: \(\frac{10}{3}\)

d. \(y = \frac{8}{3}x + \frac{10}{3};\)
   slope: \(\frac{8}{3};\) y-intercept: \(\frac{10}{3}\)
What is the graph of the equation?

6. $-4x + y = -2$
   a. 
   b. 
   c. 
   d. 

Write an equation of the line, in point-slope form, that passes through the two given points.

7. points: $(-10, 18), (6, -14)$
   a. $y - 18 = -2(x + 10)$
   b. $y - 10 = -2(x - 18)$
   c. $y - 10 = -\frac{1}{2}(x + 18)$
   d. $y - 18 = -\frac{1}{2}(x + 10)$
What is an equation of the line, in point-slope form, that passes through the given point and has the given slope?

8. point: (8, −3); slope: 8

a. $y - 3 = 8(x + 8)$       c. $y - 3 = 8(x - 8)$

b. $y + 3 = 8(x - 8)$       d. $y + 3 = 8(x + 8)$

What are the intercepts of the equation? Graph the equation.

9. $−4x − 6y = 24$

a. $x$-intercept: (−4, 0)  $y$-intercept: (0, −6)

b. $x$-intercept: (−4, 0)  $y$-intercept: (0, −6)

c. $x$-intercept: (−6, 0)  $y$-intercept: (0, −4)

d. $x$-intercept: (−6, 0)  $y$-intercept: (0, −4)
10. You are trying to compare the Fahrenheit and Celsius scales and you have two examples: Temperature A is −10 degrees Celsius and 14 degrees Fahrenheit. Temperature B is 90 degrees Celsius and 194 degrees Fahrenheit. What graph models the relationship between the Fahrenheit and Celsius scales? What is an equation of the line in slope-intercept form?

a. [Graph A]

\[ y = \frac{9}{5}x + 32 \]

b. [Graph B]

\[ y = \frac{5}{9}x + 32 \]

c. [Graph C]

\[ y = \frac{9}{5}x + 32 \]

d. [Graph D]

\[ y = \frac{5}{9}x + 32 \]
11. The office manager of a small office ordered 145 packs of printer paper. Based on average daily use, she knows that the paper will last about 65 days. What graph represents this situation? How many packs of printer paper should the manager expect to have after 25 days?

a. 55.8 packs  

b. 55.8 packs  

c. 89.2 packs  

d. 89.2 packs

12. To which set of numbers does the number belong?

12. $\sqrt{51}$

13. $-55$

14. $-\frac{2}{15}$
Name the property of real numbers illustrated by the equation.

15. \(-2(x + 11) = -2x - 22\)

16. \(2 \cdot \left( \sqrt{8} \cdot 7 \right) = \left( 2 \cdot \sqrt{8} \right) \cdot 7\)

17. \(\pi + 10 = 10 + \pi\)

Solve the equation.

18. \(3y + 20 = 3 + 2y\)

19. \(0.125r - 0.0625 + 0.25r = 0.25 + r\)

20. \(-5y - 9 = -(y - 1)\)

Use an algebraic equation to solve the problem.

21. A rectangle is 3 times as long as it is wide. The perimeter is 60 cm. Find the dimensions of the rectangle. Round to the nearest tenth if necessary.

Is the following always, sometimes, or never true?

22. \(14 + 3x - 7 = 7x + 7 - 4x\)

23. \(8 + 6x - 10 = 10x + 11 - 4x\)

Solve the equation or formula for the indicated variable.

24. \(S = 5r^2 t\), for \(t\)

25. \(T = \frac{4U}{E}\), for \(U\)

Solve the inequality. Graph the solution set.

26. \(2r - 9 \geq -6\)

27. \(26 + 6b \geq 2(3b + 4)\)
Solve the problem by writing an inequality.

28. If the perimeter of a rectangular picture frame must be less than 200 in., and the width is 36 in., what must the height \( h \) of the frame be?

Is the inequality sometimes, always, or never true?

29. \(-2(2x + 9) > -4x + 9\)

30. \(2(10x - 5) - 9x \leq 11x + 13\)

Solve the absolute value equation. Graph the solution.

31. \(|x - 3| = 1\)

32. \(2|4x - 5| - 2 = -4\)

33. \(|4x + 1| = -3\)

34. \(4|3x + 5| + 2 = 10\)

Solve the equation. Check for extraneous solutions.

35. \(4|4 - 5x| = 6x + 4\)

36. \(4|5 - 6x| = 3x + 4\)

Solve the inequality. Graph the solution.

37. \(|2x + 3| \geq 19\)

38. \(|2x + 10| \leq 26\)

39. \(2 \left| x + \frac{1}{4} \right| < 9\)

40. \(|4x + 8| > 28\)
Algebra 2 Pre-Req Review
Answer Section

1. A
2. A
3. C
4. D
5. B
6. B
7. A
8. B
9. D
10. A
11. C
12. irrational numbers
13. integers
14. rational numbers
15. Distributive Property
16. Associative Property of Multiplication
17. Commutative Property of Addition
18. $-17$
19. $-0.5$
20. $-2\frac{1}{2}$
21. 7.5 cm by 22.5 cm
22. always
23. never
24. $t = \frac{S}{5r^2}$
25. $U = \frac{TE}{4}$
26. $r \geq \frac{1}{2}$
27. all real numbers
28. $h < 64$ in.
29. never
30. always
31. \( x = 4 \) or \( x = 2 \)

32. \( x = 1 \) or \( x = \frac{1}{2} \)

33. \( x = -1 \) or \( x = \frac{1}{2} \)

34. \( x = -1 \) or \( x = -2 \frac{1}{3} \)

35. \( x = \frac{10}{7} \)

36. \( x = \frac{8}{7} \)

37. \( x \leq -11 \) or \( x \geq 8 \)

38. \(-18 \leq x \leq 8 \)

39. \(-4 \frac{3}{4} < x < 4 \frac{1}{4} \)

40. \( x < -9 \) or \( x > 5 \)