Geometry Readiness Practice Test

1. Evaluate $3 + 6 \cdot 4 - 16 \div 2$.

2. Evaluate the expression $16 + 12x - x^3$ when $x = 3$.

____ 3. Use the concept of opposites to simplify $-\left[-(-4)\right]$.

a. 4 b. $\frac{1}{4}$ c. -4 d. $-\frac{1}{4}$

Tell whether the number is *rational* or *irrational*. Give a reason for your answer.

4. $\sqrt{\frac{169}{64}}$

Solve the equation.

5. $\frac{9x}{3} + 11x = 28$

6. $5x + 2 = x + 7$

7. Plot the points (3, –5) and (5, 4) and find the slope of the line passing through the points .

8. Plot the points $\left(\frac{9}{2}, 2\right)$ and $\left(\frac{5}{2}, 1\right)$ and find the slope of the line passing through them.

9. Find the slope of the line that contains (–5, 8) and (–5, –5).

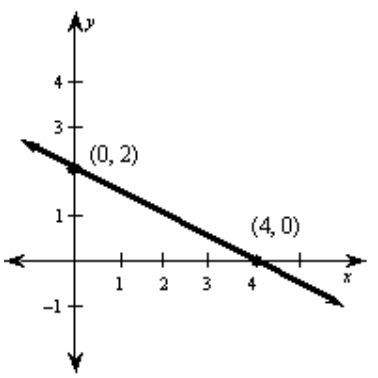
10. Write the equation $4x - y - 2 = 0$ in slope-intercept form, and sketch the line.

11. Write the equation $3x - y - 2 = 0$ in slope-intercept form, and sketch the line.

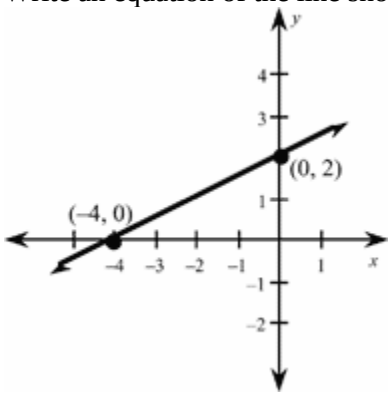
____ 12. Choose an equation, in slope-intercept form, of a line with a slope –3 and a *y*-intercept of 1.

a. $y = -3x + 1$ b. $y = -3x - 1$ c. $x = -3y + 1$ d. $y = -\frac{1}{3}x - 1$

13. Write an equation of the line shown.

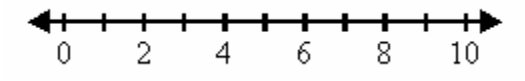


14. Write an equation of the line shown.



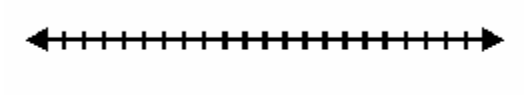
Solve and graph.

15. $-12y < -60$



Solve the inequality. Then graph its solution.

16. $-\frac{x}{2} < -5$



Writing: A mistake has been made in the solution. Explain the error and how to correct it.

17. $y = 3x - 4$
$3x - 2y = 13$

$$3x - 2(3x - 4) = 13$$
$$3x - 6x - 8 = 13$$
$$-3x - 8 = 13$$
$$-3x = 21$$
$$x = -7$$
$$y = 3(-7) - 4$$
$$y = -21 - 4$$
$$y = -25$$

Solution: $x = -7$ and $y = -25$

18. Solve the system by adding or subtracting.

$$-3x - 3y = 9$$
$$3x + 8y = 6$$

Solve the system:

19. $3x + 4y = 4$
$3x + y = 10$

Solve the system of inequalities graphically:

20. $y \geq x - 4$
$y \leq -2x - 8$

Simplify:

21. $e^3 \cdot e^6 \cdot e$

22. $\left(3c^2\right)\left(-3c^2d^2\right)$

Simplify:

23. $\left(3t^8r^8\right)^6$

24. Evaluate the expression $\frac{5^4 \cdot 5^5}{5^6}$.

25. Rewrite using only positive exponents: $2ab^3c^{-3}$

26. Rewrite the expression using positive exponents. $\dfrac{1}{9x^{-2}y^{-1}}$

27. Rewrite the expression using positive exponents. $(-2)^0\left(3x^{-2}y^{-2}\right)^{-1}$

28. Find the sum $\left(-5x^2+7x-2\right)+\left(2-3x+4x^2\right)$.

Simplify the expression.

29. $\left(3e^4-4\right)-\left(8e^3+2\right)+\left(4e^4+3e^3\right)$

Find the product.

30. $(x-8)(x+7)$

31. $-3x^2\left(2x^2-5x-3\right)$

32. $(x-3)\left(x^2+4x-2\right)$

Factor the polynomial.

33. $x^2-16x+63$

Solve the equation.

34. $x^2+4x-5=0$

35. $x^2-3x-54=0$

Factor the trinomial.

36. $25x^2-15x+2$

37. $2x^2-17x+8$

Graph the function.

38. $y=-9x^2$

Describe how the graph of the function compares to the graph of $y = x^2$.

39. $y=4x^2$

Simplify:

40. $\sqrt{20}$

____ 41. $\sqrt{200}$

a. $10\sqrt{2}$ b. $5\sqrt{2}$ c. $50\sqrt{2}$ d. $20\sqrt{2}$

Simplify:

42. $\sqrt{6} \cdot \sqrt{20}$

Find the product.

43. $\frac{13x^5}{12x^3} \cdot \frac{6x^2}{4x^6}$

Find the sum.

44. $\frac{2x}{x(x-4)} + \frac{3x(5x-5)}{x(x-4)}$

Find the difference.

45. $\frac{x}{x-2} - \frac{3}{2}$

46. $\frac{x^2-1}{x^2+8x+7} - \frac{1}{x+7}$

Solve the equation:

47. $\frac{x}{3} - \frac{x}{9} = 6$

48. $1 - \frac{3}{x-2} = \frac{-12}{x^2-4}$

Solve.

49. $|x+6| = 3$

Solve the equation algebraically.

50. $|x-2| - 2 = 7$