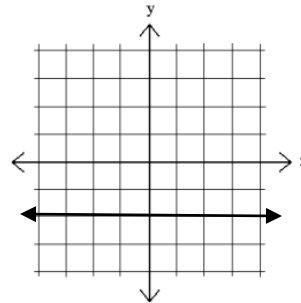Name: _____   Date: _____

Algebra Portion: Pre-Assessment for Geometry

Detach the last page and write answers.

Multiple Choice.

1. What is the relationship between $y = \frac{-3}{2}x + 2$ and $y = \frac{2}{3}x + 2$?
   a. Parallel and pass through (2,0)
   b. Perpendicular and pass through (0,2)
   c. Parallel and pass through (0,2)
   d. Perpendicular and pass through (2,0)

2. What is the slope of the graph to the right?
   a. $m = 0$
   b. $m = -2$
   c. *Undefined*
   d. *None of the above*

3. Which one is NOT a linear function?
   a. $x = -8$
   b. $y - 6 = 4(x - 9)$
   c. $y = x(2x + 7)$
   d. $y = 0$

4. Given the equation, $\frac{ax}{c} + b = 0$. What is the correct order of steps to solve for x?
   a. Subtract b, multiply by c, and divide by a.
   b. Multiply by c, subtract b, and multiply by a.
   c. Add b, divide by c, and multiply by a.
   d. Subtract b, divide by c, and multiply by a.

5. How many solutions does the following equation produce: $|3x - 4| = -2$
   a. None
   b. One
   c. Two
   d. Infinitely many

6. Suppose y varies inversely with x and y = 5 when x = 3. What is the constant of variation?
   a. 3
   b. 5
   c. 5/3
   d. 15

7. Suppose s varies directly as t. What is the equation if u is the constant of variation?
   a. $s = \frac{u}{t}$
   b. $t = \frac{u}{s}$
   c. $s = ut$
   d. $t = us$

8. $-3x - 4(3x - 10) = -5$
   a. $x = \frac{-35}{15}$
   b. $x = 3$
   c. $x = \frac{1}{3}$
   d. $x = 40$

9. What is the slope of $4x + 3y = 1$?
    a. $m = -4/3$
    b. $m = -3/4$
    c. $m = 3$
    d. $m = 4$

10. What is the slope of $y - 8 = -4(x - 2)$?
    a. $m = -8$
    b. $m = -4$
    c. $m = -2$
    d. $Undefined$

11. What is the slope of $x = \frac{75}{53}$?
    a. $m = \frac{75}{53}$
    b. $m = 0$
    c. $m = 1$
    d. $Undefined$

12. What is the slope of $y = x + 2$?
    a. $m = 0$
    b. $m = 1$
    c. $m = 2$
    d. $Undefined$

13. Write the equation of the line in **slope-intercept form** given the following information: slope is 2 and y-intercept is -9.
    a. $y = 2x - 9$
    b. $y = -9x + 2$
    c. $y = \frac{-2}{9}x$
    d. $y = \frac{-9}{2}x$

14. Write the equation of the line in **slope-intercept form** given the following information: $m = \frac{5}{3}$ and (-6,-6)
    a. $y = \frac{5}{3}x - 6$
    b. $y = \frac{5}{3}x$
    c. $y = \frac{5}{3}x + 4$
    d. $y = \frac{5}{3}x + 6$

15. Write the equation of the line in **slope-intercept form** given the following information (0,4) and (-1, -2)
    a. $y = -2x + 4$
    b. $y = 6x + 4$
    c. $y = 6x - 4$
    d. $y = -2x - 4$

16. Find the equation of the line perpendicular to $y = 2x + 10$ and passes through the point (0, 2).
    a. $y = 2x + 2$
    b. $y = 2x - 2$
    c. $y = \frac{-1}{2}x + 2$
    d. $y = \frac{-1}{2}x - 2$

17. A video rental store charges a $6 membership fee and $3 for each DVD or *blue-ray* rented. Write a linear equation to represent the situation.
    a. $y = 3x + 6$
    b. $y = 6x + 3$
    c. $y = 3x - 6$
    d. *The situation cannot be represented linearly*

18. Evaluate $p^2 + \frac{1}{3r} \div q(s + 2) - 5$ *where* $p = -5, q = -\frac{1}{2}, r = -2, s = -4$
    a. 56
   b. 29
    c. -21
    d. -39

19. The formula for area of a trapezoid is $A = \frac{1}{2}(b_1 + b_2)h$ can be rewritten so as to find b_1 in multiple ways. Which of the following is completed incorrectly?
    a. $b_1 = \frac{2A}{h} - b_2$
    b. $b_1 = -b_2 + 2\frac{A}{h}$
    c. $b_1 = \frac{2A - b_2 h}{h}$
    d. $b_1 = 2(\frac{A - b_2}{h})$

20. Of the following, which statement is NOT TRUE about the slope of a linear equation?
    a. The ratio of the horizontal change to the vertical change
    b. Rise over run
    c. The quotient of the difference of the y's and the difference x's
    d. Rate of change

21. Write the inequality shown in the graph to the right. (Solid line)
    a. $y \leq \frac{1}{3}x - 2$
    b. $y \geq \frac{1}{3}x - 2$
    c. $y < \frac{1}{3}x - 2$
    d. $y > \frac{1}{3}x - 2$
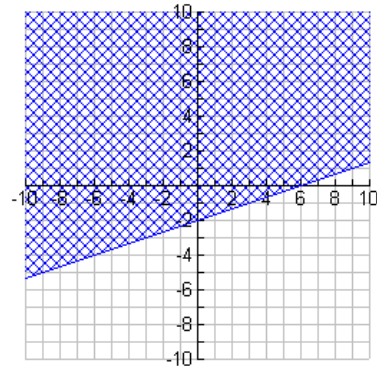
22. Find the solution to the system of equations:
$$3x - 2y = 9$$
$$-6x + 4y = 18$$

    a. (3, 2)
    b. (-6, 4)
    c. No Solution
    d. All Reals

23. Find the solution to the system of equations:
$$y = -x + 6$$
$$-2x + 4y = 6$$

    a. (3, 3)
    b. (-1, 10)
    c. No solution
    d. All reals

24. Factor $x^2 + 2x - 8$.
   a. $(x - 4)(x + 2)$
   b. $(x + 4)(x - 2)$
   c. $(x + 8)(x - 1)$
   d. $(x - 8)(x + 1)$

25. Factor $2x^2 + x - 3$.
   a. $(2x + 1)(x - 3)$
   b. $(2x - 1)(x + 3)$
   c. $(2x - 3)(x + 1)$
   d. $(2x + 3)(x - 1)$

26. Solve $x^2 + 5x - 50 = 0$.
   a. $x = 5, -10$
   b. $x = -5, \ 10$
   c. $x = 5, -50$
   d. $x = -5, \ 50$

27. Solve $x^2 + 4x - 14 = 0$. Give answer in most simplified form.
   a. $x = -2 \pm 3\sqrt{2}$
   b. $x = -2 \pm \sqrt{18}$
   c. $x = -2 \pm 3i\sqrt{2}$
   d. $x = 7 \ or - 2$

28. Factor $16x^4 - 1$ completely.
   a. $(4x^2 + 1)(4x^2 - 1)$
   b. $(2x + 1)^2(4x - 1)(4x + 1)$
   c. $(2x + 1)^2(2x - 1)^2$
   d. $(4x^2 + 1)(2x + 1)(2x - 1)$

29.   Factor $2r^3 + 8r^2 - 10r$ completely.

   A. $2r(r^2 + 4r - 5)$

   B. $2(r^3 + 4r^2 - 5r)$

   C. $2r(r - 1)(r + 5)$

   D. $(2r - 1)(r + 5)$

30.   Find the vertex of the graph of the function $f(x) = x^2 - 6x + 5$.

   A. $(3, -4)$ B. $(-3, 4)$

   C. $(3, 4)$ D. $(-6, 5)$

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____

16. _____

17. _____

18. _____

19. _____

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