

Name_____Period_____Date_____

Algebra 2 Final REVIEW—Fall 2009

1. Which of the following sets of numbers does **not** contain π ?
A. real B. rational C. irrational D. all of these.

2. What is the value of 15^{-4} ?
A. $1/45$ B. $1/225$ C. $1/3375$ D. $1/50625$

3. What is the value of $16^{1/4}$?
A. 2 B. 3 C. 4 D. 8

4. What is the slope-intercept form of a linear equation with $m = 2$ and $b = -5$?
A. $y = 2x + 5$ B. $y = \frac{1}{2}x - 5$ C. $y = 2x - 5$ D. $y = -5x + 2$

5. Which property of addition is illustrated by the statement $A + B = B + A$
A. Associative property B. Commutative Property
C. Identity Property D. Inverse Property

6. Which property of multiplication is illustrated by the statement $x(yz) = (xy)z$
A. Associative property B. Commutative Property
C. Identity Property D. Inverse Property

7. Evaluate the expression. $9^{1/2} + 40 \div 10 \cdot (7 - 5)^{-2}$
A. 3 B. 4 C. 5 D. 6

8. Write the equation that is parallel to the line $y = \frac{1}{2}x$ and goes through the point (8,3).

- A. $y = \frac{1}{2}x - 1$ B. $y = -\frac{1}{2}x + 3$ C. $y = \frac{1}{2}x + 3$ D. $y = \frac{1}{2}x + 1$

9. Solve the inequality for x: $-3x \geq 12$

- A. $x \geq -4$ B. $x \leq -4$ C. $x \geq 4$ D. $x \leq 4$

10. Which of the following relations is **not** a function?

- A. $\{(2, 1), (3, 1), (4, 5)\}$ B. $\{(2, 1), (2, 3), (5, 4)\}$
C. $\{(3, 1), (4, 5), (-2, 5)\}$ D. $\{(-1, 1), (-2, 2), (-3, 3)\}$

11. If $f(x) = x^2$ and $g(x) = (x + 2)$, which operation gives the new function $h(x) = x^2 - x - 2$?

- A. $f - g$ B. $f \circ g$ C. $f \bullet g$ D. $f + g$

12. What is the inverse of the function $(7,6), (-5,-4), (3,2), (-1,0)$?

- A. $(-1,0), (-2,-3), (-4,-5), (-6,-7)$ B. $(-1,0), (3,2), (-5,-4), (6,7)$
C. $(1,0), (3,2), (5,4), (7,6)$ D. $(6,7), (-4,-5), (2,3), (0,-1)$

13. Identify the transformations from $f(x) = x^2$ to the function $g(x) = (3x)^2 - 2$.

- A. Vertical compression by a factor of $\frac{1}{3}$, vertical translation 2 units down.
B. Horizontal compression by a factor of $\frac{1}{3}$, vertical translation 2 units down.
C. Horizontal stretch by a factor of 3, vertical translation 2 units up.
D. Horizontal stretch by a factor of 3, vertical translation 2 units down.

14. What is the inverse function of $g(x) = \frac{1}{5}x$?

- A. $y = \frac{1}{2}x + 5$ B. $y = \frac{1}{2}x - 5$ C. $y = 5x$ D. $y = -\frac{1}{2}x + 5$

15. What is an example of the special functions studied this semester?

- A. scatter plots B. linear C. piecewise D. quadratic

16. Two different lines in a system of equations has _____ solution(s).

- A. none B. one C. two D. infinite

17. Solve: $\begin{cases} 4x + y = 2 \\ x - y = 3 \end{cases}$

- A. (1, 2) B. (2, 1) C. (-2, 1) D. (1, -2)

18. Solve: $\begin{cases} 8x + y = -4 \\ 0 = -4 - y - 8x \end{cases}$

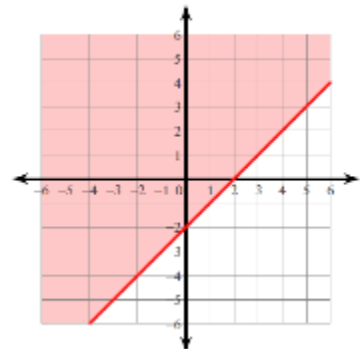
- A. (4, 8) B. (-4, 8) C. no solution D. infinite solutions

19. How would the linear inequality $y < 2x + 1$ be graphed?

- A. solid line, shade below B. dashed line, shade below
C. solid line, shade above D. dashed line, shade above

20. Write the inequality to represent the following graph:

- A. $y > x - 2$
B. $y \geq x - 2$
C. $y \leq x + 2$
D. $y < x - 2$



21. Which vertex would give the maximum to the objective function $I = 5x - 2y$?

A. $(0, 1)$

B. $(2, 3)$

C. $(2, 0)$

D. $(3, 2)$

22. The area of a parking lot is 600 square meters. A car requires 6 square meters of space. A bus requires 30 square meters of space. The attendant can handle only 60 vehicles total. If a car is charged \$2.50 and a bus is charged \$7.50 to park.

Write a system of inequalities to represent the constraints. Let x represent cars and y represent busses.

A.
$$\begin{cases} 6x + 30y \geq 600 \\ x + y \geq 60 \\ x \geq 0 \\ y \geq 0 \end{cases}$$

B.
$$\begin{cases} 6x + 30y \leq 600 \\ x + y \leq 60 \\ x \geq 0 \\ y \geq 0 \end{cases}$$

C.
$$\begin{cases} 6x + 30y \leq 600 \\ x + y \geq 60 \\ x \geq 0 \\ y \geq 0 \end{cases}$$

D.
$$\begin{cases} 6x + 30y = 600 \\ x + y = 60 \\ x = 0 \\ y = 0 \end{cases}$$

23. The area of a parking lot is 600 square meters. A car requires 6 square meters of space. A bus requires 30 square meters of space. The attendant can handle only 60 vehicles total. If a car is charged \$2.50 and a bus is charged \$7.50 to park.

Write the objective function that maximizes the income. Let x represent cars and y represent busses.

A. $I = 6x + 30y$

B. $I = 300x + 300y$

C. $I = 7.50x + 2.50y$

D. $I = 2.50x + 7.50y$

24. Which of the following is **not** a quadratic?

A. $y = 2x + 3$

B. $y = x^2 - 1$

C. $y = (x + 1)(x + 2)$

D. $y = \frac{x^3}{x}$

25. Multiply and simplify: $(3x - 1)(2x + 2)$

A. $6x^2 + 7x - 2$

B. $6x^2 + 4x - 2$

C. $6x^2 - 4x - 2$

D. $4x^2 - 4x + 2$

26. Solve: $(x+1)^2=81$

A. 10, 8

B. 8, -10

C. -10, -8

D. -8, 10

27. Factor using the greatest common factor: $3x^2 + 27x$

A. $3(x^2 + 9x)$

B. $3x(x + 9)$

C. $1(3x^2 + 27x)$

D. $x(3x + 27)$

28. Factor the quadratic binomial: $x^2 - 49$

A. $(x - 14)(x + 14)$

B. $(x - 7)(x - 7)$

C. $(x - 4)(x - 9)$

D. $(x - 7)(x + 7)$

29. Use the Zero-Product Property to find the zeros for the function $f(x) = x^2 + 3x - 18$

A. 3, -6

B. -3, -6

C. -3, 6

D. -3, 6

30. Use the Zero-Product Property to find the solutions: $x^2 - 2x = 35$

A. 5, 7

B. -5, -7

C. -5, 7

D. 5, -7