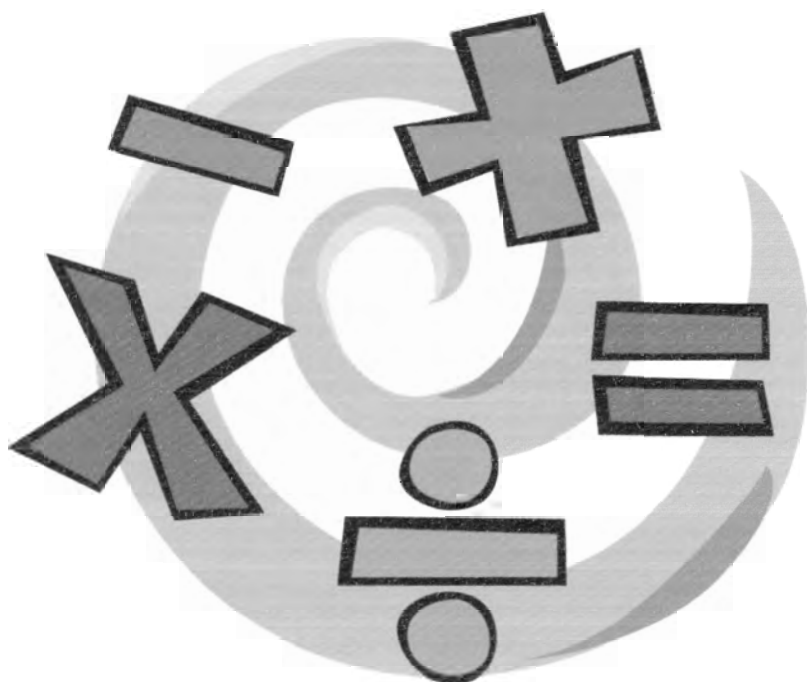


ALGEBRA II 1ST SEMESTER
PRACTICE FINAL



Glencoe Algebra 2 1st Semester Final Form A

Chapter 1

- Find the value of $5 + 4 \cdot 3 \div 6 - 1$

A 3.5 B 5.4 C 6 D 3.4
- Evaluate $(a + y)^2 - 2y$ if $a = 5$ and $y = -3$

A 58 B -2 C 70 D 10
- Simplify: $\frac{1}{2}(8x - 4) - 3(2x + 5)$

A $-2x - 17$ B $10x + 12$ C $-2x + 1$ D $-2x - 10$
- Solve: $4(2x - 9) = 3x + 4$

A -32 B -6.4 C $\frac{40}{3}$ D 8
- Solve: $4|x + 3| = 20$

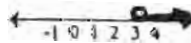

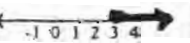

A 2 B -8 C 2, -8 D \emptyset
- Solve: $-4(2w - 1) \geq 12$

A $w \leq -1$ B $w \geq -1$ C $w \leq -2$ D $w \geq -2$
- Solve: $|2x - 5| \leq 9$

A $-4 \leq x \leq 14$ B $-2 \leq x \leq 7$ C $x \leq -2$ or $x \geq 7$ D all reals
- Which equation could be used to solve the following problem? The sum of 4 times a number and 7 is 31. Find the number.

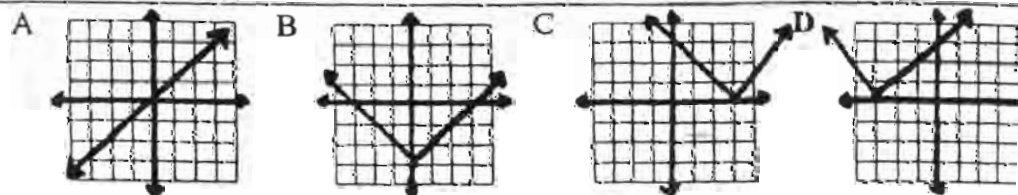
A $4(n+7)=31$ B $4n=7+31$ C $4n-7=31$ D $4n+7=31$
- Which of the following is the solution set of $3x + 5 < 14$ or $9 - 5x \leq 14$?

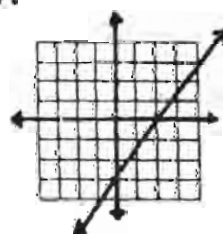
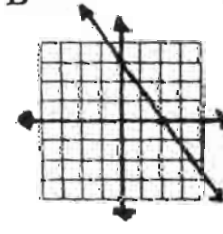
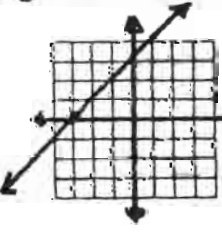
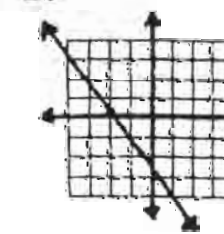
A $\{x | x < 3\}$ B $\{x | -1 \leq x < 3\}$ C all reals D \emptyset
- Identify the graph of $9 > 1.5 + 2.5x$

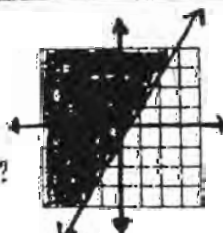
A  B  C  D 

Chapter 2

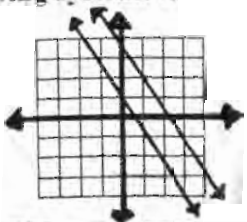
- Find the graph of $y = |x - 3|$



12. Give the domain of $h = \{(0, 0), (1, 1), (2, 0)\}$. Is h a function?
 A $\{0, 1, 0\}$; h is a function
 B $\{0, 1, 0\}$; h is not a function
 C $\{0, 1, 2\}$; h is a function
 D $\{0, 1, 2\}$; h is not a function
13. If $f(x) = x^2 - 2x - 2$, find $f(-3)$
 A 1
 B -5
 C -17
 D 13
14. Which equation is linear?
 A $3x - 2y = 5$
 B $y = x^2 - 3x + 1$
 C $xy = 60$
 D $y^2 + 1 = x$
15. Find the slope of the line for the equation $2x = 4 - y$
 A 1
 B 2
 C -2
 D -1
16. Find the slope of the line that passes through the points $(0, 2)$ and $(8, 8)$
 A 8
 B $\frac{3}{4}$
 C $-\frac{3}{4}$
 D -8
17. For which equation is the graph a horizontal line?
 A $x = 1$
 B $y = 2$
 C $y = x + 2$
 D $y = -x + 1$
18. For which pair of equations are the lines of the graphs perpendicular?
 A $y = 2x - 5$ and $y = 2x + 5$
 B $y = x + 1$ and $y = 2x + 5$
 C $y = -2x + 1$ and $y = 2x - 5$
 D $y = x + 1$ and $y = -2x + 1$
19. Write an equation in slope-intercept form that has slope -4 and passes through $(-3, 0)$
 A $y = 4x - 3$
 B $y = -4x$
 C $x - \frac{1}{4}y = 3$
 D $y = -4x - 12$
20. Write an equation in slope-intercept form that passes through $(5, -2)$ and $(10, 1)$
 A $y = 5x - 3$
 B $y = 0.6x - 5$
 C $y = -5x - 3$
 D $y = 0.2x - 3$
21. Identify the graph of $3x - 2y = 10$
 A 
 B 
 C 
 D 

22. Which inequality is graphed at the right?
 A $y \geq 2x - 1$
 B $y \leq 2x - 1$
 C $y > 2x - 1$
 D $y < 2x - 1$
- 

Which of the following systems is graphed below?



- A $y + 2x = -4$ B $y + 2x = 4$ C $y - 2x = 4$ D $y - 2x = 4$
 $y - 2x = 1$ $y + 2x = 1$ $y - 2x = 1$ $y + 2x = 1$

Eliminate x using the elimination method given:

$$\begin{aligned} 3x - 2y &= 4 \\ 4x + 5y &= 28 \end{aligned}$$

- A 3 B -3 C 4 D -4

If you multiply each side of the top equation by 4, by which number would you multiply each side of the bottom equation?

What does s equal in the solution of the system

$$\begin{aligned} 5r - s &= 7 \\ 2r + 3s &= 13 \end{aligned}$$

- A 3 B 2 C -3 D -2

For which system is there infinite solutions?

- A $\begin{cases} 3x + y = 2 \\ 6x + 2y = 2 \end{cases}$ B $\begin{cases} 3x + y = 1 \\ 6x + 2y = 2 \end{cases}$ C $\begin{cases} x + y = 5 \\ x - y = -5 \end{cases}$ D $\begin{cases} x - y = 2 \\ x + y = 4 \end{cases}$

What is the value of $\begin{vmatrix} 8 & 9 \\ 3 & 4 \end{vmatrix}$?

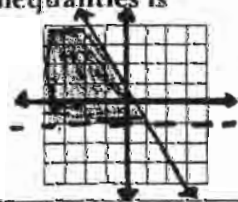
- A 5 B 59 C 60 D -5

What expression represents y in the system

$$\begin{aligned} 3x + 2y &= 9 \\ 2x - 3y &= -20 \end{aligned}$$

- A $\begin{vmatrix} 3 & 9 \\ 2 & -20 \\ 3 & 2 \\ 2 & -3 \end{vmatrix}$ B $\begin{vmatrix} 3 & 2 \\ 2 & -3 \\ 2 & 9 \\ -3 & -20 \end{vmatrix}$ C $\begin{vmatrix} 3 & -20 \\ 9 & 2 \\ 3 & 2 \\ 2 & -3 \end{vmatrix}$ D $\begin{vmatrix} 9 & 3 \\ 2 & -20 \\ 3 & -3 \\ 2 & 2 \end{vmatrix}$

Which system of inequalities is graphed?



- A $y > -1$ and $y \geq -2x + 1$ B $y > -1$ and $y \leq -2x + 1$ C $y \geq -1$ and $y \geq -2x + 1$ D $y > -1$ and $y < -2x + 1$

Solve the following system of equation, then state the classification of the system:

$$\begin{aligned} 4x - 6y &= 5 \\ x &= \frac{3}{2}y + 5 \end{aligned}$$

- A Inconsistent B Inconsistent Independent C Consistent Dependent D Consistent Independent

What does x equal in the solution of the system

$$\begin{cases} 2x + y + z = 13 \\ 2x - y - 3z = -3 \\ x + 2y + 4z = 20 \end{cases}$$

- A 3 B 2 C 4 D 5

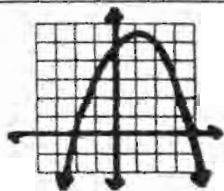
Algebra 2 Final Semester One
Chapter 5

32. Simplify $\left(\frac{3x^{-1}}{y^{-2}}\right)^0$. A 0 B 1 C $\left(\frac{3x}{y^2}\right)$ D $\left(\frac{3y^2}{x}\right)$
33. Factor: $27x^3 - 1$. A $(3x-1)(9x^2+3x+1)$ B $(3x-1)(9x^2-3x-1)$ C $(3x-1)^3$ D $(3x-1)(3x+1)^2$
34. Factor completely $x^3 + x^2y - 2xy^2$. A $x(x-y)(x-2y)$ B $x(x-y)(x+2y)$ C $x(x^2+xy-2y^2)$ D cannot be factored
35. Factor $6b^2 + 5b - 4$. A $(2b+1)(3b-4)$ B $(3b+1)(2b-4)$ C $(2b-1)(3b+4)$ D $(3b-1)(2b+4)$
36. Simplify $\frac{2}{1+\sqrt{2}}$. A $-2+2\sqrt{2}$ B $2-\sqrt{2}$ C $\frac{2-2\sqrt{2}}{-3}$ D $\frac{-2+2\sqrt{2}}{3}$
37. Solve $\sqrt{t-4} - 2 = 6$. A 20 B 64 C 68 D 85
38. Simplify: $(2+3i)(6-5i)$. A $17+8i$ B $27+13i$ C $-3+8i$ D $27+8i$
39. Divide $\frac{(3x^4 - 7x^3 + 2x^2 - x + 1)}{(x-2)}$. A $3x^3 - x^2 - 1 - \frac{1}{x-2}$ B $3x^3 - x^2 - x - 1$ C $3x^3 - 13x^2 + 28x - 49 + \frac{99}{x-2}$ D $3x^3 - x^2 + 4x + 7 + \frac{13}{x-2}$
40. Simplify $\left(\frac{ab^2}{2}\right)^{-2}$. A $\frac{a^{-2}b^{-4}}{-4}$ B $\frac{a^{-1}b^0}{-4}$ C $\frac{4}{a^2b^4}$ D $\frac{4}{a^{-2}b^{-4}}$
41. Simplify $(2x-3)^2$. A $4x^2 - 12x + 9$ B $4x^2 - 6x + 9$ C $4x^2 + 12x + 9$ D $4x^2 - 9$
42. Simplify $(2y^3)(3y)^2$. A $6y^5$ B $18y^6$ C $6y^6$ D $18y^5$
43. Simplify $\frac{3x^3y^2z}{15x^2y^5}$. A $\frac{xz}{5y^3}$ B $\frac{xy^3z}{5}$ C $5xy^3z$ D $\frac{z}{5xy^3}$
44. Simplify $\frac{1+i}{2-i}$. A $\frac{1+2i}{3}$ B $\frac{1+2i}{5}$ C $\frac{1+3i}{3}$ D $\frac{1+3i}{5}$
45. Evaluate. Express in scientific notation. $(1.2 \times 10^4)(3.2 \times 10^{-2})$. A 3.84×10^2 B 384 C 3.84×10^{-8} D 3.84×10^6
46. Simplify $(8x - 2x^2 + 7x^3) - (x^3 - 2x^2 + 3x)$. A $8x^4 - 4x^2 + 10x^4$ B $6x^3 - 4x^2 + 5x$ C $6x^3 + 5x$ D $8x^3 + 5x$
47. Simplify $(2+\sqrt{5})(3-\sqrt{5})$. A $1+\sqrt{5}$ B $1-\sqrt{5}$ C $-1+\sqrt{5}$ D $-1-\sqrt{5}$

CARS: Use with #48-49. At a used car lot, the average length of stay of a car before its sale is 21 days, with a standard deviation of 3 days. The lengths of stay are normally distributed.

8. CARS: A group of 100 cars arrives at the lot. How many cars from this group would you expect to be sold in less than 18 days?
A 34 B 16 C 5 D 2
49. CARS: What percentage of the cars are sold after being on the lot from 18 and 24 days?
A 95% B 34% C 68% D 5%
50. Find the discriminant. Describe the nature of the roots of the equation $2x^2 + x - 3 = 0$
A 4; two real, rational roots B -23; two complex roots C 25; two real, rational roots D 25; one real, rational root
51. Find the value of c that makes the expression a perfect square: $x^2 + 3x + c$
A $\frac{9}{4}$ B $\frac{3}{2}$ C $-\frac{3}{2}$ D -3
52. Solve $6x^2 = -x + 2$
A $\frac{2}{3}, \frac{-1}{2}$ B $-\frac{2}{3}, \frac{1}{2}$ C $\frac{3}{2}, 2$ D $-\frac{3}{2}, 2$
53. Solve the inequality $2x^2 - 5x - 3 \geq 0$
A $\left\{x \mid x \leq \frac{-1}{2} \text{ or } x \geq 3\right\}$ B $\left\{x \mid x \geq \frac{-1}{2} \text{ or } x \leq 3\right\}$ C $\left\{x \mid \frac{-1}{2} \leq x \leq 3\right\}$ D $\left\{x \mid \frac{1}{2} \leq x \leq -3\right\}$

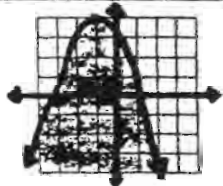
54. The graph of a quadratic function is shown at the right. What are the solutions of the related quadratic equation?



- A (4, 0), (-2, 0) C -4, 2
B 4, -2 D -4, -2

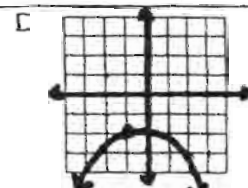
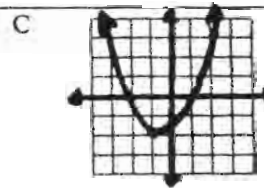
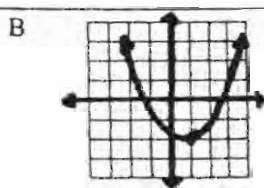
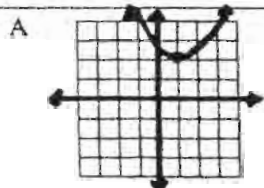
55. What is the equation of the axis of symmetry of the parabola defined by $y = -3(x+6)^2 + 1$?
A $x = 2$ B $x = -18$ C $x = 6$ D $x = -6$
56. What is the vertex for the equation defined by $y = 2(x-3)^2 + 6$?
A (-3, -6) B (3, -6) C (-3, 6) D (3, 6)
57. Which equation has the solution set $\left\{-\frac{1}{2}, \frac{2}{3}\right\}$?
A $6x^2 - 7x + 2 = 0$ B $6x^2 + x + 2 = 0$ C $6x^2 + 2x - 4 = 0$ D $6x^2 - x - 2 = 0$

58. Which inequality is graphed at the right?



- A $y \geq -(x+1)^2 + 4$ C $y \leq -(x-1)^2 + 4$
B $y \leq -(x+1)^2 + 4$ D $y \leq -(x-1)^2 - 4$

59. Which is the graph of $y = (x+1)^2 - 2$?



66.)

Simplify $\left(\frac{2a}{b}\right)^3 \cdot \left(\frac{b^2}{8}\right)$.

A. $\frac{a^3}{b}$

B. $\frac{b}{a^3}$

C. $\frac{3a^3}{4b}$

D. $\frac{4b}{3a^3}$

67.) Simplify $\frac{x}{x^2 + 2x + 1} + \frac{3}{4x^2 - 4}$.

A. $\frac{4x^2 - x + 3}{4(x + 1)^2(x - 1)}$

C. $\frac{x + 3}{5x^2 + 2x - 3}$

B. $\frac{4x^2 - 7x + 3}{4(x + 1)(x - 1)}$

D. $\frac{x^2 + 1}{4(x + 1)^2(x + 1)}$

68.) Simplify $\frac{d^2}{d + 4} \div \frac{d^2 - 4d}{d^2 + 8d + 16}$.

A. $\frac{d^2 + 4d}{d - 4}$

C. $\frac{d^3}{d^2 + 8d + 16}$

B. $\frac{d^3(d - 4)}{(d + 4)^3}$

D. $\frac{d + 4}{d - 4}$

69.) Simplify $\frac{t^2 - 2t - 3}{t^2 - 1} \cdot \frac{3t - 3}{t^2 - 4t + 3}$.

A. $\frac{t^2 - 6t + 9}{3t - 3}$

B. $\frac{3(t - 3)}{t^2 - 1}$

C. 3

D. $\frac{3}{t - 1}$

70.) Simplify $\frac{a^3 + b^3}{a^2 - b^2} \cdot \frac{b - a}{b + a}$.

A. $\frac{a^2 - ab + b^2}{a + b}$

C. $a + b$

B. $-\frac{a^2 - ab + b^2}{a + b}$

D. $-(a + b)$

71.) Simplify $\frac{(4x^2a)^2}{12x^3a^4}$.

A. $\frac{x}{3a^2}$

B. $\frac{xa^2}{3}$

C. $\frac{4x}{3a^2}$

D. $\frac{4xa^2}{3}$