

8 NAME _____ DATE _____ PERIOD _____
Chapter 8 Test, Form 1A

Write the letter for the correct answer in the blank at the right of each problem.

- Write the expression $2 \cdot x \cdot x \cdot x \cdot x \cdot x$ using exponents.
 A. $2x^5$ B. $2x^6$ C. $64x^5$ D. $(2x)^5$ 1. _____
- Which expression is equivalent to $-3y^6$?
 A. $(-3y)(-3y)(-3y)(-3y)(-3y)$
 B. $-729y^6$
 C. $-3 \cdot y \cdot y \cdot y \cdot y \cdot y$
 D. $729y^6$ 2. _____
- Evaluate $-2x^2y$ if $x = -2$ and $y = 4$.
 A. -256 B. 128 C. 256 D. 4096 3. _____

For Questions 4-9, simplify each expression.

- $x^4 \cdot x^2 \cdot x$
 A. x^6 B. x^7 C. x^8 D. $8x^7$ 4. _____
- $(3x^2y)(2x^3y)$
 A. $6x^5y$ B. $5x^5y^2$ C. $6x^5y^2$ D. $6x^4y$ 5. _____
- $\frac{3x^2y^3}{-12x^2y^3}$
 A. $-12xy$ B. $-2xy^3$ C. $2xy$ D. $-2xy$ 6. _____
- $a^3(a^{-2})$
 A. a^5 B. $\frac{1}{a}$ C. $-a^{15}$ D. a^2 7. _____
- $\frac{4x^3}{x^4}$
 A. $\frac{1}{x}$ B. $\frac{1}{x^4}$ C. $\frac{1}{x^7}$ D. $-x^4$ 8. _____
- $\frac{4x^2y^3}{-16x^2y^3}$
 A. $-4x^2y$ B. $-\frac{y}{4x^2}$ C. $-\frac{xy^3}{4}$ D. $-\frac{xy^3}{4}$ 9. _____
- Express 48 kilobytes in standard form.
 A. 0.00048 bytes B. 480 bytes
 C. 4800 bytes D. 48,000 bytes 10. _____
- Express 0.00025 meters in scientific notation.
 A. 2.5×10^{-6} m B. 2.5×10^{-4} m
 C. 2.5×10^4 m D. 2.5×10^6 m 11. _____
- Evaluate $(3.1 \times 10^3)(3 \times 10^9)$. Express the answer in scientific notation.
 A. 6.1×10^6 B. 9.3×10^{12} C. 9.3×10^6 D. 9.3×10^9 12. _____
- Pluto is about 5.9×10^8 kilometers from the sun, or about 39.5 times farther from the sun than Earth is. About how far is Earth from the sun?
 A. 1.5×10^8 km B. 2.3×10^8 km
 C. 4.36×10^8 km D. 1.5×10^7 km 13. **A**

Handwritten work for Question 13:

$$P = 39.5 \times E$$

$$\frac{5.9 \times 10^8}{39.5} = \frac{39.5 \times E}{39.5}$$

$$= \frac{5.9 \times 10^8}{39.5} \times \frac{10^8}{10^8} = \frac{5.9 \times 10^8}{3.95 \times 10^1} \approx \frac{6}{4} \approx \frac{3}{2} \approx 1.5 \times 10^8$$

Long division: $395 \overline{) 59000000000}$

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Chapter 8 Test, Form 1A (continued)

Simplify each expression.

- $\sqrt{256}$
 A. 128 B. 18 C. 16 D. -16 14. _____
- $-\sqrt{324}$
 A. -162 B. -18 C. -16 D. 18 15. _____
- $\frac{\sqrt{144}}{\sqrt{64}}$
 A. 2.25 B. $\sqrt{\frac{3}{2}}$ C. $\frac{3}{2}$ D. 4 16. _____
- $-\sqrt{\frac{64}{225}}$
 A. $\frac{8}{15}$ B. $\frac{8}{25}$ C. $-\frac{8}{25}$ D. $-\frac{8}{15}$ 17. _____

For Questions 18-20, estimate each square root to the nearest integer.

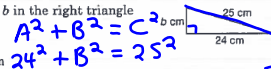
- $\sqrt{163}$
 A. 11 B. 12 C. 13 D. 14 18. _____
 - $\sqrt{0.45}$
 A. 0 B. 1 C. 2 D. 7 19. **B**
 - $\sqrt{1500}$
 A. 30 B. 35 C. 37 D. 39 20. _____
- Handwritten notes: $0.6 \cdot 0.6 \approx 0.36$, $0.7 \cdot 0.7 = 0.49 \approx 0.45$, $1 \cdot 1 \approx 1$

- The formula $t = \sqrt{\frac{d}{4.9}}$ gives the time t in seconds for an object to fall d meters. About how long will it take an object to fall 500 meters?
 A. 10 s B. 11 s C. 15 s D. 22 s 21. _____

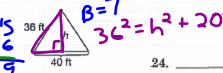
- Find the length of the hypotenuse of the right triangle shown at the right.
 A. 9 cm B. 10 cm
 C. 12 cm D. 14 cm 22. _____



- Find the missing measure b in the right triangle shown at the right.
 A. 1 cm B. 5 cm
 C. 7 cm D. 10 cm 23. _____



- A side view of a roof is shown at the right. Find the height h to the nearest foot.
 A. 17 ft B. 28 ft
 C. 30 ft D. 32 ft 24. _____



- Which triangle with side lengths given below is *not* a right triangle?
 A. 3, 4, 5 B. 7, 8, 9 C. 9, 40, 41 D. 10, 24, 26 25. _____

Bonus A right triangle has sides of 6 inches and 8 inches. What is the measure of the third side?
 A. 5.3 only B. 10 only C. 5.3 or 10 D. 14 only **Bonus** _____

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Chapter 9 Test, Form 1A

Write the letter for the correct answer in the blank at the right of each problem.

1. Which of the following is a monomial?
 A. $5x + 2$ B. $x - y$ C. $\frac{1}{2}xy$ D. b^{-2} 1. _____

Find the degree of each polynomial.

2. $3x^4 + 2x^3$
 A. 3 B. 4 C. 6 D. 7 2. _____
3. $2a^2b^3 + 4ab^2$
 A. 2 B. 3 C. 4 D. 5 3. _____

Arrange the terms of each polynomial so that the powers of x are in descending order.

4. $3x + 2x^3 + x^2$
 A. $3x + 2x^3 + x^2$ B. $2x^3 + x^2 + 3x$
 C. $3x + x^2 + 2x^3$ D. $x^2 + 2x^3 + 3x$ 4. _____
5. $5x + x^3 + x^2y + x^4y^2$
 A. $x^4y^2 + x^3 + x^2y + 5x$ B. $5x + x^2y + x^3 + x^4y^2$
 C. $x^4y^2 + x^2y + 5x + x^3$ D. $5x + x^3 + x^2y + x^4y^2$ 5. _____

Find each sum or difference.

6. $(3x^2 - 4x) + (2x^2 + 2x)$
 A. $x^2 + 6x$ B. $x^2 - 6x$ C. $5x^2 - 2x$ D. $5x^2 + 2x$ 6. _____
7. $(-6y + 3x) + (2y + 8x)$
 A. $-4y + 11x$ B. $-8y + 11x$ C. $4y + 10x$ D. $8y - 11x$ 7. _____
8. $(5x^2 + 7x - 4) + (x^2 + 6x - 1)$
 A. $6x^2 + 12x - 5$ B. $4x^2 + 13x - 5$
 C. $6x^2 + 12x - 3$ D. $6x^2 + 13x - 5$ 8. _____
9. $(7a + 7) - (3a - 2)$
 A. $10a + 5$ B. $4a + 9$ C. $4a + 5$ D. $4a - 5$ 9. _____
10. $(3x^2 + 9x + 2) - (-3 + 7x^2)$
 A. $10x^2 + 9x$ B. $-4x^2 + 9x + 5$
 C. $10x^2 - 1$ D. $10x^2 + 9x + 5$ 10. _____

Find each product.

11. $-5(m + 10)$
 A. $-5m + 10$ B. $-5m - 15$ C. $-5m + 5$ D. $-5m - 50$ 11. _____
12. $b(3b - 12)$
 A. $3b^2 - 12b$ B. $3b - 12b$ C. $3b - 12$ D. $3b^2 + 12b$ 12. _____
13. $-x^2(5x^2 - x + 2)$
 A. $5x^4 - x^3 - 2x^2$ B. $-5x^4 - x^3 - 2x^2$
 C. $-5x^4 + x^3 - 2x^2$ D. $-5x^4 + x^3 - x^2$ 13. _____

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Chapter 9 Test, Form 1A (continued)

Solve each equation.

14. $2(y + 3) = -2$
 A. -4 B. -1 C. 0 D. 4 14. **A**
15. $2(x - 2) + 5 = -1(2x - 9) + 4$
 A. 0 B. 3 C. 5 D. 8 15. _____

Find each product.

16. $(g + 3)(g + 4)$
 A. $g^2 + 7g + 12$ B. $g^2 + 3g + 7$
 C. $g^2 + 12g + 7$ D. $g^2 + 7g + 7$ 16. _____
17. $(s + 2)(s - 6)$
 A. $s^2 + 4s - 12$ B. $s^2 - 4s - 8$
 C. $s^2 - 4s + 12$ D. $s^2 - 4s - 12$ 17. _____
18. $(2x + 1)(x - 9)$
 A. $2x^2 - 10x - 9$ B. $2x^2 - 18x - 9$
 C. $2x^2 + 17x + 9$ D. $2x^2 - 17x - 9$ 18. _____
19. $(x + y)(8x - 7y)$
 A. $8x^2 + xy - 7y^2$ B. $x^2 + 15xy + 7y^2$
 C. $8x^2 + 15xy + 7y^2$ D. $9x + xy + 6y$ 19. _____
20. $(x^2 + 1)(x^2 + 2)$
 A. $x^4 + 3x^2 + 2$ B. $x^2 + 3x + 2$
 C. $x^4 + 3 + 2x^2$ D. $x^4 + x^2 + 3$ 20. _____
21. $(x + 7)^2$
 A. $x^2 + 7x + 49$ B. $x^2 + 7x + 14$
 C. $x^2 + 14x + 49$ D. $x^2 + 7x + 35$ 21. _____
22. $(2a - b)^2$
 A. $2a^2 - 4ab + b^2$ B. $4a^2 - 4ab + b^2$
 C. $4a^2 - 2ab - b^2$ D. $2a^2 - 4ab - b^2$ 22. _____
23. $(x + 9y)(x - 9y)$
 A. $x^2 + 81y^2$ B. $x^2 - 90y^2$
 C. $x^2 - 81y^2$ D. $x^2 - 18xy - 81y^2$ 23. _____
24. $(7x - 5y)^2$
 A. $14x^2 - 35xy + 25y^2$ B. $14x^2 - 70xy - 25y^2$
 C. $49x^2 - 70xy + 25y^2$ D. $49x^2 - 35xy + 25y^2$ 24. _____
25. $(9c + 10d)(9c - 10d)$
 A. $81c^2 + 100d^2$ B. $9c^2 - 10d^2$
 C. $18c^2 - 20d^2$ D. $81c^2 - 100d^2$ 25. _____

Bonus Find the product of $(2x + a)$ and $(2x + d)$.

- A. $4x^2 + 2ax + 2dx + ad$ B. $4x^2 + 2adx + ad$
 C. $4x^2 + 2adx + ad^2$ D. $2x^2 + 2ax + 2dx + d^2$ **Bonus** _____

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Chapter 10 Test, Form 1A

Write the letter for the correct answer in the blank at the right of each problem.

For Questions 1–2, find the factors of each number and classify the number as prime or composite.

1. 37
 A. 1, 3, 7; composite
 B. 1, 37; prime
 C. 1, 19; composite
 D. 1, 7; prime
 1. _____
2. 36
 A. 1, 2, 3, 4, 6, 9, 12, 18, 36; composite
 B. 1, 2, 4, 6, 12, 18; composite
 C. 1, 3, 6, 9, 12, 16; composite
 D. 1, 3, 36; prime
 2. _____
3. The area of a rectangle is 48 square inches. Find the length and width so that the rectangle has the least perimeter. Assume that the length and width are both whole numbers.
 A. 3 in., 16 in. B. 4 in., 12 in. C. 2 in., 24 in. D. 6 in., 8 in.
 3. _____

Find the greatest common factor of each set of numbers or monomials.

4. 28, 40
 A. 2 B. 4 C. 7 D. 14
 4. _____
5. $48a^2b$, $36ab$
 A. $3a$ B. $4ab$ C. $12ab$ D. $24b$
 5. _____

Factor each polynomial. If the polynomial cannot be factored, write prime.

6. $12x + 16x^2y$
 A. $4x(3 + 4xy)$ B. $4(3 + 4xy)$ C. $12x(1 + 4x)$ D. $4xy(3 + 4x)$
 6. _____
7. $9a - 4b$
 A. prime B. $4(5a - b)$ C. $a(9 - 4b)$ D. $3(3a - 2b)$
 7. _____
8. $5c^2 + 10cd + 25cd^2$
 A. $5cd(c + 2 + 5d)$ B. $5(c^2 + 2d + 5d^2)$
 C. $5c(c + 2d + 5d)$ D. $5c(c + 2d + 5d^2)$
 8. _____

Find each quotient.

9. $(21xy + 35y) \div 7y$
 A. $3x + 5y$ B. $3x + 5$ C. $3 + 5y$ D. $3xy + 5$
 9. _____
10. $(42a^2b + 18b^3) \div 6b$
 A. $8a^2 + 3b^2$ B. $8a + 3b^2$ C. $7a^2 + 3b^2$ D. $7a^2 + 3b^3$
 10. _____

Factor each trinomial. If the trinomial cannot be factored, write prime.

11. $x^2 + 3x + 2$
 A. $(x + 1)(x + 2)$ B. $(x + 3)(x + 2)$ C. prime D. $(x + 4)(x - 1)$
 11. _____
12. $y^2 + y - 6$
 A. $(y + 6)(y - 1)$ B. $(y + 3)(y - 2)$ C. prime D. $(y + 7)(y - 1)$
 12. _____

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Chapter 10 Test, Form 1A (continued)

Factor each trinomial. If the trinomial cannot be factored, write prime.

13. $a^2 - 3a - 4$
 A. $(a + 1)(a - 4)$ B. prime
 C. $(a - 1)(a + 4)$ D. $(a - 1)(a - 4)$
 13. _____
14. $x^3 + 4x^2 + 3x$
 A. prime B. $(x^2 + 1)(x + 3)$
 C. $(x + 1)(x^2 + 3)$ D. $x(x + 1)(x + 3)$
 14. _____
15. $3a^3 - 3a^2 - 6a$
 A. $3(a + 1)(a - 2)$ B. $a(a - 1)(a - 6)$
 C. $(3a + 1)(a^2 - 2)$ D. $3a(a + 1)(a - 2)$
 15. _____
16. $6r^2 + 5r + 6$
 A. prime B. $(3r + 2)(3r + 3)$
 C. $(3r + 2)(2r + 3)$ D. $(2r + 3)(3r + 3)$
 16. _____
17. $8x^2 + 6x + 1$
 A. $(8x + 1)(x + 1)$ B. $(2x + 1)(4x + 1)$
 C. $(4x + 1)(4x + 1)$ D. prime
 17. _____
18. $3y^2 + 5y - 2$ $(3y - 1)(y + 2)$
 A. $(3y - 1)(y - 2)$ B. $(3y + 1)(y + 2)$
 C. $(3y + 1)(y - 4)$ D. $(3y - 1)(y + 2)$
 18. **D**
19. $3d^2 - 4d + 1$
 A. $(3d - 1)(d - 1)$ B. $(3d + 1)(d - 1)$
 C. prime D. $(2d - 1)(d - 2)$
 19. _____
20. $6x^2 + 16x - 6$
 A. $3(2x + 1)(x - 2)$ B. prime
 C. $2(x + 3)(3x - 1)$ D. $(5x + 3)(x - 2)$
 20. _____
21. $a^2 - 25$
 A. prime B. $(a - 5)^2$
 C. $(a - 5)(a + 5)$ D. $(a - 5)(a + 10)$
 21. _____
22. $g^2 + 12g + 36$
 A. $(g + 4)^2$ B. $(g + 6)^2$
 C. $(g + 6)(g - 6)$ D. $(g + 9)(g + 3)$
 22. _____
23. $x^2 - 49$
 A. $(x - 7)^2$ B. prime
 C. $(x + 7)^2$ D. $(x - 7)(x + 7)$
 23. _____
24. $4y^2 + 12y + 9$
 A. $(2y + 3)(2y - 3)$ B. $(2y - 3)^2$
 C. $(2y + 3)^2$ D. $(2y + 6)(2y + 2)$
 24. _____
25. $9k^2 - 4$
 A. $(3k - 2)^2$ B. $(3k + 2)^2$
 C. $(3k - 2)(3k + 2)$ D. prime
 25. _____

Bonus Find all values of b so that the trinomial $x^2 + bx + 6$ can be factored.

- A. 2, 3 B. 5, 7 C. 5, -5, 7, -7 D. 1, 2, 3, 6 Bonus _____

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Chapter 11 Test, Form 1A

Write the letter for the correct answer in the blank at the right of each problem.

- Which quadratic function has a graph that opens downward?
 A. $y = 3x^2 + x + 1$ B. $y = 3x^2 - x + 1$
 C. $y = 3x^2 + x - 1$ D. $y = -3x^2 + x + 1$ 1. _____
- Which is the graph of $y = x^2 + 2$? $y\text{-int: } (0, 2)$
 A. B.
 C. D. 2. _____
- Name the coordinates of the vertex of the graph of $y = 2x^2 + 4x - 1$. $Ax^2 + Bx + C$
 A. $(-1, -3)$ B. $(1, 3)$ C. $(-2, -1)$ D. $(0, -1)$ 3. A
- Which statement best describes how the graph of $y = x^2 + 4$ changes from the parent graph of $y = x^2$? $(x-3)^2$
 A. left 4 units B. right 4 units C. up 4 units D. down 4 units 4. C
- Name the coordinates of the vertex of the graph of $y = (x + 1)^2 + 2$.
 A. $(-1, 2)$ B. $(1, 2)$ C. $(-1, -2)$ D. $(1, -2)$ 5. _____
- Which is the graph of $y = (x + 3)^2$? $(-3, 0)$
 A. B.
 C. D. 6. B
- Which graph has roots 2 and -3?
 A. B.
 C. D. 7. _____
- Find the roots of $x^2 - 4x + 3 = 0$ by graphing the related function.
 A. -4, 3 B. -2, 3 C. 1, 3 D. 0, 3 8. C
- Estimate the roots of $x^2 - 2x - 2 = 0$.
 A. Between -2 and -1 and between 2 and 3
 B. Between -1 and 0 and between 2 and 3
 C. Between -2 and -1 and between -2 and -3
 D. Between -4 and -3 and between 0 and 1 9. _____

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Vertex: $x = \frac{-b}{2a} = \frac{2}{2(1)} = 1$
 $(1, -3)$

$(x-1)(x-3) = 0$
 A. -4, 3 B. -2, 3 C. 1, 3 D. 0, 3

$x^2 - 4x + 3 = 0$
 $(x-1)(x-3) = 0$
 A. -4, 3 B. -2, 3 C. 1, 3 D. 0, 3

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Chapter 11 Test, Form 1A (continued)

For Questions 10-12, solve each equation.





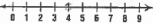




- $4m(m - 2) = 0$
 A. 4, -2 B. 0, 2 C. 2 only D. 0 only 10. B
- $(p - 3)(p + 1) = 0$
 A. -3, 1 B. 3, -1 C. -3, -1 D. 0, 3 11. _____
- $x^2 + 5x + 4 = 0$
 A. 4, 5 B. 1, 4 C. -1, -4 D. 1, -4 12. _____
- Find the value of c that makes the trinomial $x^2 + 12x + c$ a perfect square.
 A. -36 B. 9 C. 24 D. 36 $(\frac{b}{2})^2 = (\frac{12}{2})^2 = 36$ 13. _____
- Find the value of c that makes the trinomial $y^2 + 9y + c$ a perfect square.
 A. $\frac{9}{2}$ B. $\frac{81}{4}$ C. 36 D. 81 $(\frac{b}{2})^2 = (\frac{9}{2})^2 = \frac{81}{4}$ 14. B
- Solve $x^2 - 8x = 0$ by completing the square.
 A. 0 only B. -8 only C. 0, -8 D. 0, 8 15. _____
- For Questions 16-18, use the Quadratic Formula to solve each equation.
 $x = 7$ or $x = -1$
 $(x-7)(x+1) = 0$
 16. $x^2 - 6x - 7 = 0$
 A. -1, 6 B. -1, 7 C. 1, -7 D. 1, 7 16. B
- $x^2 + 4x + 3 = 0$
 A. 1, 3 B. 1, 4 C. -1, -3 D. -1, 4 17. _____
- $3x^2 + 3x - 6 = 0$
 A. -2, -1 B. -2, 1 C. 1, 2 D. 3, -2 18. _____
- Which is the graph of $y = 2x^2$?
 A. B.
 C. D. 19. _____
- Find the y-intercept of the graph of $y = 3x^2 + 1$.
 A. 0 B. 1 C. 2 D. 3 20. _____

Bonus Find the y-intercept of the graph of $y = 2x^2 - 1$.
 A. -1 B. 0 C. $\frac{1}{2}$ D. 2 **Bonus** _____

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Chapter 12 Test, Form 1A


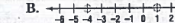

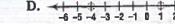
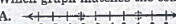
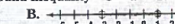
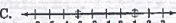
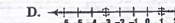
Write the letter for the correct answer in the blank at the right of each problem.

- Which of the following inequalities describes a number that is less than or equal to 12?
 A. $x > 12$ B. $x \geq 12$ C. $x < 12$ D. $x \leq 12$ 1. _____
- Which is the graph of $x < 5$?
 A.  B.  C.  D.  2. _____
- Which inequality matches the graph at the right?

 A. $x \leq 4$ B. $x \geq 4$ C. $x < 4$ D. $x > 4$ 3. _____
- Which is the solution of $n + 8 > -5$?
 A. $\{n | n > -13\}$ B. $\{n | n < -13\}$ C. $\{n | n < 3\}$ D. $\{n | n > 3\}$ 4. _____
- Which is the solution of $x - 5 \leq -2$?
 A. $\{x | x \leq -7\}$ B. $\{x | x \geq -7\}$ C. $\{x | x \leq 3\}$ D. $\{x | x \geq 3\}$ 5. _____
- Which is the graph of the solution of $2 < 3 + m$?
 A.  B.  C.  D.  6. _____

For Questions 7-13, solve each inequality.

- $-5x \leq 20$
 A. $\{x | x \leq -4\}$ B. $\{x | x \geq -4\}$ C. $\{x | x \leq 25\}$ D. $\{x | x \geq -100\}$ 7. _____
- $\frac{x}{3} > 6$
 A. $\{x | x < -18\}$ B. $\{x | x > 18\}$ C. $\{x | x < -2\}$ D. $\{x | x > -18\}$ 8. _____
- $-2x \geq 8$
 A. $\{x | x \leq -4\}$ B. $\{x | x \geq -4\}$ C. $\{x | x \leq -16\}$ D. $\{x | x \leq 16\}$ 9. _____
- $-12 > -4w$
 A. $\{w | w < 3\}$ B. $\{w | w > 3\}$ C. $\{w | w < -48\}$ D. $\{w | w > 48\}$ 10. _____
- $3p - 6 > 12$
 A. $\{p | p < 2\}$ B. $\{p | p > 2\}$ C. $\{p | p < 6\}$ D. $\{p | p > 6\}$ 11. _____
- $8 \leq 12 - 4x$
 A. $\{x | x \leq 1\}$ B. $\{x | x \geq -5\}$ C. $\{x | x \leq 5\}$ D. $\{x | x \leq 11\}$ 12. _____
- $3 - 2x > 7$
 A. $\{x | x < 2\}$ B. $\{x | x > -2\}$ C. $\{x | x < 5\}$ D. $\{x | x < -2\}$ 13. _____
- Which is the solution of $-10 \leq 12 - 2x$?
 A. $\{x | x \leq -1\}$ B. $\{x | x \geq -1\}$ C. $\{x | x \geq -11\}$ D. $\{x | x \leq 11\}$ 14. _____
- Write the compound inequality $y \leq 3$ and $y \geq -2$ without using the word and.
 A. $-2 \geq y \geq 3$ B. $-2 \leq y \leq 3$ C. $y \leq -2$ D. $y \geq -6$ 15. _____

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Chapter 12 Test, Form 1A (continued)

- Which is the graph of $x < -4$ or $x > 1$?
 A.  B.  16. _____
 C.  D.  17. _____
- Which graph matches the compound inequality $-3 \leq x < 1$?
 A.  B.  18. _____
 C.  D.  19. _____

Solve each compound inequality.


- $-3 \leq x - 1 < 4$
 A. $\{x | -4 \leq x < 3\}$ B. $\{x | -2 \leq x < 5\}$ 18. _____
 C. $\{x | -4 \leq x < 5\}$ D. $\{x | -2 \leq x < 3\}$
- $x - 2 > 4$ or $x + 3 < 6$
 A. $\{x | 3 < x < 6\}$ B. $\{x | x > 6$ or $x < 3\}$ 19. _____
 C. $\{x | x < -6$ or $x > 3\}$ D. $\{x | x > -6$ or $x < -3\}$


For Questions 20-22, solve each inequality.

- $|5x| < 20$
 A. $\{x | x > -4\}$ B. $\{x | x < -4\}$ 20. _____
 C. $\{x | -4 < x < 4\}$ D. $\{x | x > 4\}$
- $|x + 2| < 6$
 A. $\{x | x < 4\}$ B. $\{x | -4 < x < 4\}$ 21. _____
 C. $\{x | -8 < x < 4\}$ D. $\{x | -8 > x > 4\}$
- $|x - 3| \geq 6$
 A. $\{x | x \leq 9\}$ B. $\{x | x \geq -9$ or $x \leq 3\}$ 22. _____
 C. $\{x | x \geq 9$ or $x \leq -3\}$ D. $\{x | -3 \leq x \leq 9\}$

- Which inequality is shown in the graph?

 A. $x \geq 2$ B. $x \leq 2$ 23. _____
 C. $y \geq 2$ D. $y \leq 2$

- Which inequality is shown in the graph?

 A. $y > x + 3$ B. $y > x - 3$ 24. _____
 C. $y > -x - 3$ D. $y < -x - 3$

- Which inequality is shown in the graph?

 A. $y \leq x + 2$ B. $y \leq \frac{1}{2}x + 1$ 25. _____
 C. $y \geq 2x + 1$ D. $y \leq 2x + 1$

Bonus Graph $y \leq x + 2$ and $y > \frac{1}{2}x + 2$ on the same coordinate plane.

- Which point is contained in both graphs?
 A. (2, 4) B. (0, 3) C. (-2, 0) D. (-4, 4) **Bonus** _____

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Chapter 13 Test, Form 1A

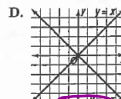
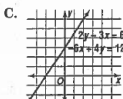
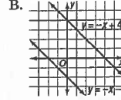
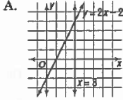
Write the letter for the correct answer in the blank at the right of each problem.

For Questions 1-2, solve each system of equations by graphing.

1. $y = x - 2$
 $y = 2x - 7$
 A. (3, 1) B. (5, 3) C. (4, 2) D. (-1, 3) 1. _____

2. $2x - 3y = 7$
 $x + y = 1$
 A. (4, -1) B. (5, 1) C. (3, -2) D. (2, -1) 2. _____

3. Which system is consistent and dependent?



4. How many solutions does the system $2x + y = 3$ and $2y = 4x - 3$ have?
 A. 0 B. 1 C. 2 D. infinitely many 4. _____

$2(-2x+3) = 4x-3$
 $-4x+6 = 4x-3$
 $-4x-4x = -3-6$
 $-8x = -9$
 $x = \frac{9}{8}$

5. The equation $2x - y = 5$ forms an inconsistent system together with which equation?
 A. $x + 2y = 5$ B. $x + y = 5$ C. $y = -2x + 5$ D. $2y = 4x - 5$ 5. _____

For Questions 6-7, use substitution to solve each system of equations.

6. $x = 2y + 1$
 $2x - y = -7$
 A. (5, 11) B. (-5, -3) C. (2, -5) D. (7, 3) 6. _____

7. $3y - x = 4$
 $2x + 2y = 24$
 A. (5, 3) B. (6, 6) C. (8, 8) D. (10, 2) 7. _____

$3y - x = 4$
 $2(3y - x) = 24$
 $6y - 2x = 24$
 $6y - 2(3y - x) = 24$
 $6y - 6y + 2x = 24$
 $2x = 24$
 $x = 12$

8. Use elimination to solve the system of equations $x - 2y = 3$ and $4x + 2y = 12$.
 A. (3, 0) B. (0, 6) C. (-1, -2) D. (2, 2) 8. _____

9. Find the solution of the system $\frac{x}{5} + 4y = 10$ and $2x + 3y = 18$.
 A. $(4, \frac{7}{3})$ B. (6, 2) C. (12, -2) D. $(10, -\frac{2}{3})$ 9. _____

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Chapter 13 Test, Form 1A (continued)

For Questions 10-11, use elimination to solve each system of equations.

10. $-3x + 5y = 9$
 $9x - 10y = -12$
 A. (-3, 0) B. (-8, -6) C. (-2, -3) D. (2, 3) 10. _____

11. $2x - 3y = 28$
 $6x + 10y = 8$
 A. (5, -6) B. (20, 16) C. (8, -4) D. (44, 20) 11. _____

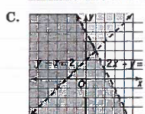
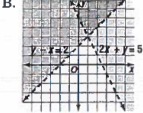
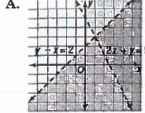
12. Find the solution of the system $y = -x^2 + 8$ and $y = -4x + 3$.
 A. (-3, -1), (1, -1) B. (-5, 23), (1, -1)
 C. (5, -17), (-1, 7) D. no solution 12. _____

13. Solve the system of equations by substitution. $y = x + 2$
 $y = 3x^2 - 28$
 A. (-3, -1), $(\frac{10}{3}, \frac{16}{3})$ B. (-5, 3), (0, 28)
 C. (3, 5), (2, -16) D. no solution 13. _____

14. What is the solution of the system $y = 3x - 1$ and $y = x^2 - 5$?
 A. (2, 5), (3, 4) B. (4, 11), (-1, -4)
 C. (3, 8), (-3, -10) D. no solution 14. _____

15. Which ordered pair is a solution of the system of inequalities?
 $x + 2y \geq 8$
 $-x - y < -2$
 A. (-4, 3) B. (10, -1) C. (5, -2) D. (0, 3) 15. _____

16. Use graphing to solve the system of inequalities. $2x + y > 5$
 $y - x < 2$



16. _____

Bonus Jared sells 450 pounds of scrap aluminum and copper to a recycling plant for \$234. He gets \$0.40 per pound for his aluminum cans and \$0.60 per pound for copper tubing. How much copper did he sell?
 A. 180 lb B. 210 lb C. 240 lb D. 270 lb Bonus _____

14 NAME _____ DATE _____ PERIOD _____
Chapter 14 Test, Form 1A

Write the letter for the correct answer in the blank at the right of each problem.

Name the set or sets of numbers to which each real number belongs. Let N = natural numbers, W = whole numbers, Z = integers, Q = rational numbers, and I = irrational numbers.

1. 0
 A. W, Z B. W, N C. W, Z, Q D. N, W 1. _____

2. $\sqrt{16}$
 A. I B. N, W, Z C. N, W, Z, Q D. I, Q 2. _____

Find an approximation, to the nearest tenth, for each square root.

3. $\sqrt{17}$
 A. 7.3 B. 6.2 C. 4.2 D. 4.1 3. _____

4. $-\sqrt{8}$
 A. no solution B. -2.8 C. -2.9 D. -3.1 4. _____

5. $\sqrt{27}$
 A. 3.2 B. 5.1 C. 5.2 D. 5.9 5. _____

Find the distance between each pair of points. Round to the nearest tenth, if necessary.

6. $A(0, 3), B(0, -5)$
 A. -2 B. 2 C. 7 D. 8 6. _____

7. $C(1, -1), D(4, 2)$
 A. 2.4 B. 4.2 C. 9 D. 18 7. _____

8. $E(3, 2), F(-4, 2)$
 A. 7 B. 1 C. -1 D. -7 8. _____

Find the value of a if the points are the indicated distance apart.

9. $G(2, a), H(1, 4); d = \sqrt{17}$
 A. 2 B. 1 C. 0 D. -1 9. _____

10. $M(a, 4), N(2, 3); d = \sqrt{10}$
 A. -2 B. -1 C. 0 D. 1 10. _____

Simplify each expression. Leave in radical form.

11. $\sqrt{32}$
 A. $16\sqrt{2}$ B. $4\sqrt{2}$ C. 4 D. $\sqrt{2}$ 11. _____

12. $\sqrt{18} \cdot \sqrt{2}$
 A. 2 B. $\sqrt{3} \cdot \sqrt{2}$ C. $3\sqrt{2}$ D. 6 12. _____

13. $\frac{\sqrt{12}}{\sqrt{3}}$
 A. $\frac{4\sqrt{3}}{\sqrt{3}}$ B. 4 C. 2 D. $4\sqrt{3}$ 13. _____

14 NAME _____ DATE _____ PERIOD _____
Chapter 14 Test, Form 1A (continued)

Simplify each expression. Leave in radical form. Use absolute value symbols if necessary.

14. $\frac{2}{(5-\sqrt{2})(5+\sqrt{2})} \rightarrow \frac{2(5+\sqrt{2})}{25-2} = \frac{10+2\sqrt{2}}{23} = \frac{10+2\sqrt{2}}{23}$
 A. $\frac{10+2\sqrt{2}}{23}$ B. $2\sqrt{2}$ C. $10 + \sqrt{2}$ D. $\frac{5+2\sqrt{2}}{2}$ 14. A

15. $\sqrt{8ab^4}$
 A. $2b^2\sqrt{2}$ B. $4b\sqrt{2a}$ C. $2b\sqrt{2a}$ D. $2b^2\sqrt{2a}$ 15. _____

16. $5\sqrt{3} + 9\sqrt{3} = 14\sqrt{3}$
 A. 14 B. 42 C. $14\sqrt{6}$ D. $14\sqrt{3}$ 16. D

17. $14\sqrt{5} - 7\sqrt{5}$
 A. $-7\sqrt{5}$ B. $7\sqrt{5}$ C. 7 D. 35 17. _____

18. $2\sqrt{2} + 2\sqrt{8}$
 A. $2\sqrt{10}$ B. $4\sqrt{2}$ C. $6\sqrt{2}$ D. 16 18. _____

19. $\sqrt{24} + \sqrt{54}$
 A. $\sqrt{78}$ B. 30 C. 12.5 D. $5\sqrt{6}$ 19. D

Handwritten notes: $24 = 2 \cdot 12 = 2 \cdot 2 \cdot 3 \cdot 3 = 2^2 \cdot 3^2$
 $54 = 2 \cdot 3 \cdot 3 \cdot 3 = 2 \cdot 3^3$

20. $\sqrt{63} - \sqrt{112} + \sqrt{121}$
 A. $-\sqrt{7} + 11$ B. $\sqrt{72}$ C. $11 + \sqrt{7}$ D. 13.5 20. _____

Solve each equation. Check your solution.

21. $\sqrt{x} = 4$
 A. 16 B. 8 C. 4 D. 2 21. _____

22. $\sqrt{a+7} = 0$
 A. -7 B. no solution C. $\sqrt{7}$ D. $-\sqrt{7}$ 22. B

23. $\sqrt{k-6} = 6$
 A. 36 B. 9 C. 42 D. $\sqrt{30}$ 23. _____

24. $\sqrt{m+9} - 5 = 3$
 A. $\sqrt{71}$ B. -5 C. 64 D. 55 24. _____

25. $p = \sqrt{4p+5}$
 A. 5 B. -1 C. -1 or 5 D. no solution 25. _____

- Bonus Solve $\sqrt{\frac{x}{3}} + 3 = 12$. Check your solution.
 A. 243 B. 162 C. 81 D. 27 Bonus _____

15 NAME _____ DATE _____ PERIOD _____
Chapter 15 Test, Form 1A

Write the letter for the correct answer in the blank at the right of each problem.

Find the excluded value(s) for each rational expression.

1. $\frac{7a}{3a-1}$
 A. $\frac{1}{3}$ B. $3a$ C. a D. $7a$ 1. _____
denominator $\neq 0$
 $x = -2$ or $x = 3$
2. $\frac{x^2+3x+9}{x^2-x-6}$
 A. 6 B. $-2, 3$ C. $2, 3$ D. $-2, -3$ 2. **B**
 $x^2 - x - 6 \rightarrow (x+2)(x-3)$

Simplify each rational expression.

3. $\frac{9}{27}$
 A. $\frac{1}{9}$ B. $\frac{1}{4}$ C. $\frac{1}{3}$ D. $\frac{1}{2}$ 3. _____
4. $\frac{x^2-4x}{3(x-4)}$
 A. $\frac{x}{3}$ B. $\frac{x^2}{3}$ C. $x-4$ D. $\frac{x-4}{3}$ 4. _____

Find each product.

5. $\frac{4x}{3y} \cdot \frac{y^2}{2}$
 A. $\frac{2}{3}$ B. $\frac{2x}{3}$ C. $\frac{2xy}{3}$ D. $\frac{2x}{3}$ 5. _____
6. $\frac{a^2-16}{a+2} \cdot \frac{3a+6}{a^2-3a-4}$
 A. $\frac{3(a-4)}{a+1}$ B. $\frac{3(a+4)(a+3)}{a+1}$ C. $\frac{3(a+4)}{a+1}$ D. $\frac{3(a-4)}{(a+1)(a+2)}$ 6. _____

Find each quotient.

7. $\frac{2ab}{c} \div \frac{3}{4c}$
 A. $\frac{9ab}{4c}$ B. $12ab$ C. $\frac{ab}{c}$ D. $4ab$ 7. _____
8. $\frac{g^2+3g+2}{g^2+3g+2} \div \frac{g+1}{g+2}$
 A. $\frac{g+1}{2}$ B. $2(g+1)$ C. $\frac{g+2}{2}$ D. $2(g+2)$ 8. **B**
 $\frac{g^2+3g+2}{g^2+3g+2} = \frac{2(g+1)}{1} = 2(g+1) = 2g+2$
9. $(x^2+5x) \div (x+5)$
 A. x B. $x+5$ C. x^2 D. $\frac{x}{5}$ 9. _____
10. $(k^2-k-20) \div (k-5)$
 A. $k+4$ B. $k-5$ C. $k-4$ D. $\frac{k+4}{k-5}$ 10. _____

15 NAME _____ DATE _____ PERIOD _____
Chapter 15 Test, Form 1A (continued)

11. Find $(4y^2 - 9y + 2) \div (4y - 1)$.
 A. $\frac{y-2}{4y}$ B. $\frac{y}{4}$ C. $y-2$ D. $y+2$ 11. _____

For Questions 12-14, find each sum or difference. Write in simplest form.

12. $\frac{8}{14b} - \frac{3}{14b}$
 A. $\frac{11}{14b}$ B. $\frac{5}{b}$ C. 5 D. $\frac{5}{14b}$ 12. _____
13. $\frac{7}{3e} + \frac{-6}{e}$
 A. $\frac{2}{3}$ B. $\frac{12}{3e}$ C. $\frac{4}{e}$ D. $\frac{-8}{3e}$ 13. _____
14. $\frac{12}{x-3} - \frac{9}{x-3}$
 A. $\frac{1}{x-3}$ B. $\frac{1}{x}$ C. $\frac{3}{x}$ D. $\frac{3}{x-3}$ 14. _____

15. Find the LCM for $14x^2$ and $12xy$.
 A. $84x^2y$ B. $2x$ C. $14x^2y$ D. $48x^2y$ 15. _____
16. Write $\frac{2}{ab}$ and $\frac{3}{ac}$ with the same LCD.
 A. $\frac{2c+3b}{abc}$ B. $\frac{5}{abc}$ C. $\frac{2c}{abc} + \frac{3b}{abc}$ D. $\frac{5}{a^2bc}$ 16. _____
17. Find $\frac{y}{5} - \frac{y}{7}$ in simplest form.
 A. $-\frac{y}{4}$ B. $\frac{4y}{21}$ C. 0 D. $\frac{2y}{14}$ 17. _____

Solve each equation. Check your solution.

18. $\frac{h}{4} = \frac{6-h}{8}$
 A. 6 B. 3 C. 2 D. $\frac{1}{2}$ 18. _____
19. $\frac{1-x}{x} + \frac{2-x}{x} = 7$
 A. -2 B. $\frac{1}{3}$ C. $\frac{3}{5}$ D. 2 19. _____
20. $\frac{1}{3y} + \frac{1}{y} = \frac{1}{3}$
 A. $\frac{1}{12}$ B. $\frac{1}{4}$ C. $\frac{4}{3}$ D. 4 20. _____

- Bonus** Solve $\frac{8}{a^2-5a+6} = \frac{1}{a-2} + \frac{2}{a-3}$. Check your solution.
 A. $\frac{13}{2}$ B. 5 C. $\frac{5}{3}$ D. 0 Bonus _____

