

Print Name _____

MULTIPLE CHOICE. Choose the answer that best completes the statement or answers the question. Clearly write your choice in the blank provided. Also, record your answer on the provided scantron answer sheet. There is only one answer per question. If it appears that there are no instructions for a question, use the instructions for the previous question. Good luck and have fun!

Factor the sum or difference of two cubes.

1) $343y^3 - 216$

1) _____

A) $(343y - 6)(y^2 + 42y + 36)$

B) $(7y - 6)(49y^2 + 36)$

C) $(7y - 6)(49y^2 + 42y + 36)$

D) $(7y + 6)(49y^2 - 42y + 36)$

2) $343p^3 - 1$

2) _____

A) $(7p - 1)(49p^2 + 1)$

B) $(343p - 1)(p^2 + 7p + 1)$

C) $(7p + 1)(49p^2 - 7p + 1)$

D) $(7p - 1)(49p^2 + 7p + 1)$

Factor out the GCF from the polynomial.

3) $27x^4y + 24xy^5$

3) _____

A) $3xy(9x^3 + 8y^4)$

B) $xy(27x^3 + 24y^4)$

C) $3y(9x^4 + 8xy^4)$

D) $3x(9x^3y + 8y^5)$

4) $x(y + 10) + 8(y + 10)$

4) _____

A) $10y(x + 8)$

B) $(xy + 10x) + (8y + 80)$

C) $(y + 10)(x + 8)$

D) $8x(y + 10)$

Factor the binomial completely.

5) $49x^2 - 36$

5) _____

A) prime

B) $(7x + 6)(7x - 6)$

C) $(7x + 6)^2$

D) $(7x - 6)^2$

Solve the equation.

6) $64x^3 - x = 0$

6) _____

A) $-\frac{1}{8}$

B) $\frac{1}{8}$

C) $\frac{1}{8}, 0$

D) $\frac{1}{8}, -\frac{1}{8}, 0$

7) $x^2 + 13x + 42 = 0$

7) _____

A) 7, 6

B) 42, 0

C) -7, -6

D) 7, -6

8) $25x^2 - 49 = 0$

8) _____

A) $\frac{7}{5}$

B) $\frac{7}{5}, -\frac{7}{5}$

C) $-\frac{7}{5}$

D) $\frac{7}{5}, -\frac{7}{5}, 0$

Factor the trinomial completely. If the polynomial cannot be factored, write "prime."

9) $x^2 + x - 72$

9) _____

A) prime

B) $(x + 1)(x - 72)$

C) $(x - 8)(x + 9)$

D) $(x - 9)(x + 8)$

10) $9x^2 - 27xy - 36y^2$

10) _____

A) prime

B) $9(x - y)(x + 4y)$

C) $(9x - 9y)(x + 4y)$

D) $9(x + y)(x - 4y)$

11) $x^4 - 6x^2 - 27$

11) _____

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

B) $(x^2 - 27)(x^2 + 1)$

C) prime

D) $(x^2 + 9)(x^2 - 3)$

Represent each given condition using a single variable, x .

12) The base and height of a triangle whose height is four less than three times its base.

12) _____

A) base = x ; height = $3x - 4$

B) height = x ; base = $4x - 3$

C) height = x ; base = $3x - 4$

D) base = x ; height = $4x - 3$

Solve.

13) If the sides of a square are increased by 2 meters, the area becomes 49 square meters. Find the length of a side of the original square.

13) _____

A) 7 m

B) 5 m

C) 9 m

D) 2 m

Factor completely.

14) $4x^4 - 12x^3 + 9x^2$

14) _____

A) $x^2(2x - 3)(2x - 3)$

B) $(4x^2 + 3)(x^2 + 3)$

C) $x(2x + 3)(2x + 3)$

D) $x^2(4x - 1)(x - 9)$

15) By the zero factor property, if the product of two numbers is 0, then at least one of the numbers must be _____.

15) _____

A) greatest common factor

B) quadratic equation

C) 0

D) 1

16) _____ is the process of writing an expression as a product.

16) _____

- A) Perfect Square trinomial
- B) Greatest common factor
- C) Factoring
- D) Quadratic Equation

17) The expression $a^2 - b^2$ is called a _____.

17) _____

- A) difference of two squares
- B) difference of two cubes
- C) perfect square trinomial
- D) sum of two cubes

SHORT ANSWER. Solve. Show your work and use algebraic methods. Circle your final answer and include units if applicable.

Find a positive value of b so that the trinomial is factorable.

18) $2x^2 + bx + 1; b = ?$

18) _____

Factor the trinomial by grouping.

19) $4x^2 - 7x + 9$

19) _____

Factor the trinomial.

20) $3x^2 - 10x - 8$

20) _____

21) $56x^3 - 413x^2 + 147x$

21) _____

Factor the four-term polynomial by grouping.

22) $20a^3 - 25a^2b - 12ab^2 + 15b^3$

22) _____

Solve.

23) Two vehicles leave the same corner at the same time and travel at a right angle to each other. One vehicle travels 3 kilometers an hour faster than the other. If after one hour the vehicles are 15 kilometers apart, find the rate of each vehicle.

23) _____

24) The sum of two numbers is 15, and the sum of their squares is 125. Find the numbers.

24) _____

Answer Key

Testname: 116_GRPREV_61_67

- 1) C
Objective: (6.5) Factor the Sum or Difference of Two Cubes
- 2) D
Objective: (6.5) Factor the Sum or Difference of Two Cubes
- 3) A
Objective: (6.1) Factor Out the Greatest Common Factor from a Polynomial
- 4) C
Objective: (6.1) Factor Out the Greatest Common Factor from a Polynomial
- 5) B
Objective: (6.5) Factor the Difference of Two Squares
- 6) D
Objective: (6.6) Solve Equations with Degree Greater Than 2 by Factoring
- 7) C
Objective: (6.6) Solve Quadratic Equations by Factoring
- 8) B
Objective: (6.6) Solve Quadratic Equations by Factoring
- 9) C
Objective: (6.2) Factor Trinomials of the Form $x^2 + bx + c$
- 10) D
Objective: (6.2) Factor Out the Greatest Common Factor and Then Factor a Trinomial of the Form $x^2 + bx + c$
- 11) A
Objective: (6.2) Factor Trinomials of the Form $x^2 + bx + c$
- 12) A
Objective: (6.7) Solve problems that can be modeled by quadratic equations.
- 13) B
Objective: (6.7) Solve problems that can be modeled by quadratic equations.
- 14) A
Objective: (6.3) Factor Out a GCF Before Factoring a Trinomial of the Form $ax^2 + bx + c$
- 15) C
Objective: (6.8) Vocabulary Check
- 16) C
Objective: (6.8) Vocabulary Check
- 17) A
Objective: (6.8) Vocabulary Check
- 18) 3
Objective: (6.3) Factor Trinomials of the Form $ax^2 + bx + c$, where $a \neq 1$
- 19) prime
Objective: (6.4) Use the Grouping Method to Factor Trinomials of the Form $ax^2 + bx + c$
- 20) $(3x + 2)(x - 4)$
Objective: (6.4) Use the Grouping Method to Factor Trinomials of the Form $ax^2 + bx + c$
- 21) $7x(x - 7)(8x - 3)$
Objective: (6.4) Use the Grouping Method to Factor Trinomials of the Form $ax^2 + bx + c$
- 22) $(5a^2 - 3b^2)(4a - 5b)$
Objective: (6.1) Factor a Polynomial by Grouping
- 23) Slower vehicle: 9 km/hr; faster vehicle: 12 km/hr
Objective: (6.7) Concept Extensions

Answer Key

Testname: 116_GRPREV_61_67

24) 5 and 10

Objective: (6.7) Concept Extensions