Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Algebra 1 Chapter 08 review

Multiple Choice
Identify the choice that best completes the statement or answers the question.

Simplify the difference.

____ 1. $(4w^2 - 4w - 8) - (2w^2 + 3w - 6)$
a. $2w^2 - 7w - 2$
b. $6w^2 - 1w - 14$
c. $2w^2 - 1w - 14$
d. $6w^2 + 7w + 2$

Simplify the product.

____ 2. $3p^4(4p^4 + 7p^3 + 4p + 1)$
a. $12p^8 + 3p^7 + 4p^5 + p^4$
b. $12p^8 + 21p^7 + 12p^5 + 3p^4$
c. $7p^8 + 10p^7 + 7p^5 + 4p^4$
d. $12p^{16} + 21p^{12} + 15p^4$

____ 3. $5a^2(3a^4 + 3b)$
a. $8a^4 + 8ab$
b. $15a^8 + 3b$
c. $15a^6 + 15a^2b$
d. $8a^6 + 15a^2b$

Factor the polynomial.

____ 4. $54c^3d^4 + 9c^4d^2$
a. $9c^3d^2(d^2 + 6c)$
b. $9c^3d^2(6d^2 + c)$
c. $9c^4d^2(d^2 + 6)$
d. $9c^4d^2(6d^2 + 1)$

____ 5. Find the GCF of the terms of the polynomial.

$8x^6 + 32x^3$

a. x^3 b. $8x^3$ c. $4x^3$ d. $8x^6$

____ 6. Simplify using the horizontal method.

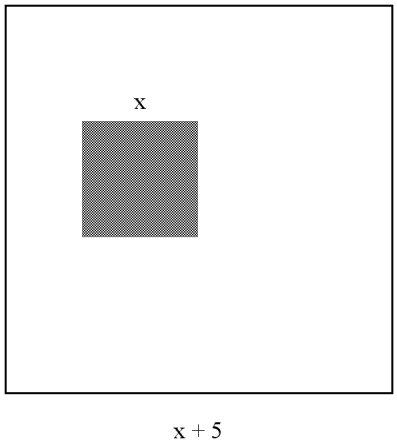
$(2n^2 + 4n + 4)(4n - 5)$

a. $8n^3 + 26n^2 - 36n - 20$
b. $8n^3 + 6n^2 - 4n - 20$
c. $8n^3 + 4n^2 - 6n - 20$
d. $8n^3 - 6n^2 + 36n - 20$

Find the square.

____ 7. $(2x - 6)^2$
a. $4x^2 - 24x + 36$
b. $4x^2 - 8x + 36$
c. $4x^2 + 36$
d. $4x^2 - 12x + 36$

____ 8. Find the area of the UNSHADED region. Write your answer in standard form.



a. $-2x^2 + 10x + 25$
b. $x^2 + 8x + 25$
c. $10x + 25$
d. $x^2 + 10x + 25$

Find the product.

____ 9. $(4p - 6)(4p + 6)$
a. $16p^2 - 36$
b. $16p^2 - 48p - 36$
c. $16p^2 + 48p + 36$
d. $16p^2 + 36$

Factor the expression.

____ 10. $k^2 + kf - 2f^2$
a. $(k - 2f)(k + f)$
b. $(k + 2f)(k - f)$
c. $(k + 2f)(k + f)$
d. $(k - 2f)(k - f)$

____ 11. $x^2 - 10xy + 24y^2$
a. $(x + 6y)(x + 4y)$
b. $(x - 2y)(x + 12y)$
c. $(x + 2y)(x - 12y)$
d. $(x - 6y)(x - 4y)$

____ 12. $15x^2 - 16xy + 4y^2$
a. $(3x - 2y)(5x + 2y)$
b. $(3x - 2y)(5x - 2y)$
c. $(3x + 2y)(5x - 2y)$
d. $(3x + 2y)(5x + 2y)$

____ 13. $12d^2 + 4d - 1$
a. $(6d + 1)(2d + 1)$
b. $(6d - 1)(2d - 1)$
c. $(6d - 1)(2d + 1)$
d. $(6d + 1)(2d - 1)$

____ 14. $d^2 - 14d + 49$
a. $(d + 7)^2$
b. $(d - 7)^2$
c. $(d - 7)(d + 7)$
d. $(d - 49)(d - 1)$

____ 15. $4x^2 - 81y^2$
a. $(2x + 9)(2x - 9)$
b. $(2x + 9y)(2x - 9y)$
c. $(2x + 9y)^2$
d. $(2x - 9y)^2$

____ 16. $49b^2 - 36$
a. $(6b + 7)(6b - 7)$
b. $(7b + 6)(7b + 6)$
c. $(7b + 6)(7b - 6)$
d. $(7b - 6)(7b - 6)$

____ 17. Find the radius of a circle with an area of $\pi(16x^2 + 24x + 9)$.

a. $3x - 4$ b. $9x - 16$ c. $16x + 9$ d. $4x + 3$

Factor by grouping.

____ 18. $3x^2 + 7x - 6$

a. $(3x - 2)(x - 3)$
b. $(3x - 2)(x + 3)$
c. $(x + 3)(3x + 2)$
d. $(3x + 2)(x - 3)$

____ 19. $21m^2 - 29m - 10$

a. $(7m - 2)(3m - 5)$
b. $(7m + 2)(3m + 5)$
c. $(7m + 2)(3m - 5)$
d. $(7m - 2)(3m + 5)$

____ 20. $a^2 + ab - 56b^2$

a. $(a + 8b)(a + 7b)$
b. $(a - 8)(a + 7b)$
c. $(a + 8b)(a - 7b)$
d. $(a - 8b)(a - 7b)$

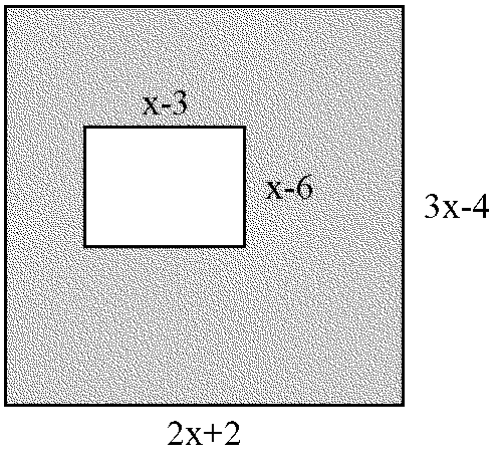
Short Answer

21. Factor the following trinomial.

$w^{18} - 9w^9y^5 + 14y^{10}$

Essay

22. Find the area of the shaded region. Show all your work.



23. Explain how to factor the following trinomial.

$g^4 + 4g^2j - 60j^2$

24. Factor the expression by grouping. Show your work.

$24q^7 - 42q^4r + 36q^3r^2 - 63r^3$

Algebra 1 Chapter 08 review

Answer Section

MULTIPLE CHOICE

1. ANS: A PTS: 1 DIF: L3
   REF: 8-1 Adding and Subtracting Polynomials
   OBJ: 8-1.2 Adding and Subtracting Polynomials STA: CA A1 10.0
   TOP: 8-1 Example 4
   KEY: monomial | degree of a monomial | polynomial | subtracting polynomials | degree of a polynomial | standard form of a polynomial | trinomial
2. ANS: B PTS: 1 DIF: L3 REF: 8-2 Multiplying and Factoring
   OBJ: 8-2.1 Distributing a Monomial STA: CA A1 10.0 | CA A1 11.0
   TOP: 8-2 Example 1 KEY: polynomial | multiplying a monomial and a trinomial
3. ANS: C PTS: 1 DIF: L2 REF: 8-2 Multiplying and Factoring
   OBJ: 8-2.1 Distributing a Monomial STA: CA A1 10.0 | CA A1 11.0
   TOP: 8-2 Example 1 KEY: polynomial | multiplying a monomial and a trinomial
4. ANS: B PTS: 1 DIF: L3 REF: 8-2 Multiplying and Factoring
   OBJ: 8-2.2 Factoring a Monomial from a Polynomial STA: CA A1 10.0 | CA A1 11.0
   TOP: 8-2 Example 3
   KEY: polynomial | greatest common factor in a polynomial | factoring out a monomial
5. ANS: B PTS: 1 DIF: L2 REF: 8-2 Multiplying and Factoring
   OBJ: 8-2.2 Factoring a Monomial from a Polynomial STA: CA A1 10.0 | CA A1 11.0
   TOP: 8-2 Example 2
   KEY: polynomial | greatest common factor in a polynomial | factoring out a monomial
6. ANS: B PTS: 1 DIF: L2 REF: 8-3 Multiplying Binomials
   OBJ: 8-3.2 Multiplying a Trinomial and a Binomial STA: CA A1 10.0
   TOP: 8-3 Example 4 KEY: polynomial | multiplying a binomial and a trinomial
7. ANS: A PTS: 1 DIF: L2 REF: 8-4 Multiplying Special Cases
   OBJ: 8-4.1 Finding the Square of a Binomial STA: CA A1 10.0
   TOP: 8-4 Example 1 KEY: polynomial | square of a binomial
8. ANS: C PTS: 1 DIF: L3 REF: 8-4 Multiplying Special Cases
   OBJ: 8-4.1 Finding the Square of a Binomial STA: CA A1 10.0
   TOP: 8-4 Example 2
   KEY: polynomial | square of a binomial | subtracting polynomials
9. ANS: A PTS: 1 DIF: L3 REF: 8-4 Multiplying Special Cases
   OBJ: 8-4.2 Difference of Squares STA: CA A1 11.0 TOP: 8-4 Example 4
   KEY: polynomial | difference of squares
10. ANS: B PTS: 1 DIF: L3
    REF: 8-5 Factoring Trinomials of the Type x^2 + bx + c OBJ: 8-5.1 Factoring Trinomials
    STA: CA A1 11.0 TOP: 8-5 Example 3 KEY: polynomial | factoring trinomials
11. ANS: D PTS: 1 DIF: L3
    REF: 8-5 Factoring Trinomials of the Type x^2 + bx + c OBJ: 8-5.1 Factoring Trinomials
    STA: CA A1 11.0 TOP: 8-5 Example 2 KEY: polynomial | factoring trinomials

12. ANS: B PTS: 1 DIF: L3
REF: 8-6 Factoring Trinomials of the Type ax^2 + bx + c OBJ: 8-6.1 Factoring ax^2 + bx + c
STA: CA A1 11.0 TOP: 8-5 Example 4 KEY: polynomial | factoring trinomials
13. ANS: C PTS: 1 DIF: L2
REF: 8-6 Factoring Trinomials of the Type ax^2 + bx + c OBJ: 8-6.1 Factoring ax^2 + bx + c
STA: CA A1 11.0 TOP: 8-6 Example 2 KEY: polynomial | factoring trinomials
14. ANS: B PTS: 1 DIF: L2 REF: 8-7 Factoring Special Cases
OBJ: 8-7.1 Factoring Perfect-Square Trinomials STA: CA A1 11.0
TOP: 8-7 Example 1
KEY: polynomial | factoring trinomials | perfect-square trinomial
15. ANS: B PTS: 1 DIF: L3 REF: 8-7 Factoring Special Cases
OBJ: 8-7.2 Factoring the Difference of Squares STA: CA A1 11.0
TOP: 8-7 Example 4 KEY: polynomial | factoring trinomials | difference of squares
16. ANS: C PTS: 1 DIF: L3 REF: 8-7 Factoring Special Cases
OBJ: 8-7.2 Factoring the Difference of Squares STA: CA A1 11.0
TOP: 8-7 Example 4 KEY: polynomial | factoring trinomials | difference of squares
17. ANS: D PTS: 1 DIF: L3 REF: 8-7 Factoring Special Cases
OBJ: 8-7.1 Factoring Perfect-Square Trinomials STA: CA A1 11.0
TOP: 8-7 Example 2
KEY: polynomial | factoring trinomials | perfect-square trinomial
18. ANS: B PTS: 1 DIF: L2 REF: 8-8 Factoring by Grouping
OBJ: 8-8.2 Factoring Trinomials by Grouping STA: CA A1 11.0
TOP: 8-8 Example 3
KEY: polynomial | factoring trinomials | factoring by grouping
19. ANS: C PTS: 1 DIF: L3 REF: 8-8 Factoring by Grouping
OBJ: 8-8.2 Factoring Trinomials by Grouping STA: CA A1 11.0
TOP: 8-8 Example 3
KEY: polynomial | factoring trinomials | factoring by grouping
20. ANS: C PTS: 1 DIF: L3 REF: 8-8 Factoring by Grouping
OBJ: 8-8.2 Factoring Trinomials by Grouping STA: CA A1 11.0
TOP: 8-8 Example 3
KEY: polynomial | factoring trinomials | factoring by grouping

SHORT ANSWER

21. ANS:
$(w^9 - 7y^5)(w^9 - 2y^5)$

PTS: 1 DIF: L4 REF: 8-5 Factoring Trinomials of the Type x^2 + bx + c
OBJ: 8-5.1 Factoring Trinomials STA: CA A1 11.0 TOP: 8-5 Example 4
KEY: polynomial | factoring trinomials

ESSAY

22. ANS:

[4] $(2x + 2)(3x - 4) - (x - 3)(x - 6) = (6x^2 - 8x + 6x - 8) - (x^2 - 6x - 3x + 18)$
$= (6x^2 - 2x - 8) - (x^2 - 9x + 18)$
$= 5x^2 + 7x - 26$

[3] one minor computational error
[2] error in formula with correct computation
[1] correct answer without work shown

PTS: 1 DIF: L3 REF: 8-3 Multiplying Binomials
OBJ: 8-3.1 Multiplying Two Binomials STA: CA A1 10.0 TOP: 8-3 Example 3
KEY: rubric-based question | extended response | polynomial | Distributive Property

23. ANS:

[4] Since the second sign is negative, one of the factors of 60 will be positive and one will be negative. Find two factors of 60 that have a difference of 4. 10 – 6 = 4; Since the first sign is positive, 10 is positive and 6 is negative. The factors of g^4 will be g^2, and the factors of j^2 will be j.
$(g^2 + 10j)(g^2 - 6j)$

[3] correct explanation with one minor factoring error
[2] correct explanation with one error in the signs of the factors
[1] correct factors with no explanation

PTS: 1 DIF: L3 REF: 8-5 Factoring Trinomials of the Type x^2 + bx + c
OBJ: 8-5.1 Factoring Trinomials STA: CA A1 11.0 TOP: 8-5 Example 3
KEY: extended response | rubric-based question | polynomial | factoring trinomials

24. ANS:

[4] $24q^7 - 42q^4r + 36q^3r^2 - 63r^3 = 3(8q^7 - 14q^4r + 12q^3r^2 - 21r^3)$
$= 3(2q^4(4q^3 - 7r) + 3r^2(4q^3 - 7r))$
$= 3(2q^4 + 3r^2)(4q^3 - 7r)$

[3] one minor computational error
[2] one minor factoring error
[1] correct answer without work shown

PTS: 1 DIF: L3 REF: 8-8 Factoring by Grouping
OBJ: 8-8.1 Factoring Polynomials With Four Terms STA: CA A1 11.0
TOP: 8-8 Example 2
KEY: extended response | rubric-based question | polynomial | factoring a polynomial