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Answer Key

Score : _____

Factoring Linear Expressions

Factorize each linear expression.

1) $6x + 9$

$3(2x + 3)$

2) $20y - 5$

$5(4y - 1)$

3) $3a + 15$

$3(a + 5)$

4) $2m + \frac{2}{3}$

$2(m + \frac{1}{3})$

5) $39u + 13$

$13(3u + 1)$

6) $10z - 60$

$10(z - 6)$

7) $3n - \frac{1}{2}$

$\frac{1}{2}(6n - 1)$

8) $42 + 35s$

$7(6 + 5s)$

9) $81v - 36$

$9(9v - 4)$

10) $40 - 80q$

$40(1 - 2q)$

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Factoring Quadratic Expressions

Factorize each quadratic expression.

1) $p^2 - 5p + 4$

$(p - 4)(p - 1)$

2) $m^2 + 3m - 10$

$(m + 5)(m - 2)$

3) $s^2 + 5s + 6$

$(s + 3)(s + 2)$

4) $u^2 - 8u + 15$

$(u - 3)(u - 5)$

5) $x^2 - 7x - 8$

$(x - 8)(x + 1)$

6) $q^2 + 8q + 7$

$(q + 1)(q + 7)$

7) $n^2 + n - 42$

$(n + 7)(n - 6)$

8) $v^2 - 6v + 5$

$(v - 5)(v - 1)$

9) $z^2 - 7z + 12$

$(z - 3)(z - 4)$

10) $a^2 - 3a - 18$

$(a - 6)(a + 3)$

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Factoring Binomials

Factorize each binomial.

1) $2ab + 4c$

$2(ab + 2c)$

2) $t^3 - ts$

$t(t^2 - s)$

3) $3n - 6m$

$3(n - 2m)$

4) $5y^2 + y$

$y(5y + 1)$

5) $qr^2 - r^3$

$r^2(q - r)$

6) $6t + 12uv$

$6(t + 2uv)$

7) $3p^2 - 15q$

$3(p^2 - 5q)$

8) $3a - a^4$

$a(3 - a^3)$

9) $16uv + 8uw$

$8u(2v + w)$

10) $9m^3 + 18n^3$

$9(m^3 + 2n^3)$

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Factors: Algebraic Identities

Factorize each polynomial using algebraic identities.

1) $x^2 + 10x + 25$

$(x + 5)^2$

2) $36u^2 - 12uv + v^2$

$(6u - v)^2$

3) $4a^2 - 4a + 1$

$(2a - 1)^2$

4) $16p^2 + 56p + 49$

$(4p + 7)^2$

5) $s^2 + 16st + 64t^2$

$(s + 8t)^2$

6) $k^2 - 18k + 81$

$(k - 9)^2$

7) $m^2 - 6mn + 9n^2$

$(m - 3n)^2$

8) $36y^2 + 84y + 49$

$(6y + 7)^2$

9) $h^2 + 4h + 4$

$(h + 2)^2$

10) $z^2 - 8z + 16$

$(z - 4)^2$

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Factors: Algebraic Identity

Factorize each polynomial using algebraic identity.

1) $w^2 - 4$

$(w + 2)(w - 2)$

2) $a^2 - b^2$

$(a + b)(a - b)$

3) $9 - 16t^2$

$(3 + 4t)(3 - 4t)$

4) $25x^2 - 36$

$(5x + 6)(5x - 6)$

5) $49p^2 - q^2$

$(7p + q)(7p - q)$

6) $64 - d^2$

$(8 + d)(8 - d)$

7) $u^2 - 16v^2$

$(u + 4v)(u - 4v)$

8) $36k^2 - 1$

$(6k + 1)(6k - 1)$

9) $x^2 - 9y^2$

$(x + 3y)(x - 3y)$

10) $25m^2 - n^2$

$(5m + n)(5m - n)$

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Factors: Algebraic Identities

Factorize each polynomial using algebraic identities.

1) $8a^3 - 27b^3$

$(2a - 3b)(4a^2 + 6ab + 9b^2)$

2) $m^3 + n^3$

$(m + n)(m^2 - mn + n^2)$

3) $125x^3 - 64$

$(5x - 4)(25x^2 + 20x + 16)$

4) $27u^3 + 343v^3$

$(3u + 7v)(9u^2 - 21uv + 49v^2)$

5) $c^3 + 216$

$(c + 6)(c^2 - 6c + 36)$

6) $512z^3 - 1$

$(8z - 1)(64z^2 + 8z + 1)$

7) $8r^3 - 729$

$(2r - 9)(4r^2 + 18r + 81)$

8) $p^3 - 1000q^3$

$(p - 10q)(p^2 + 10pq + 100q^2)$

9) $27c^3 + 125d^3$

$(3c + 5d)(9c^2 - 15cd + 25d^2)$

10) $64y^3 - 216$

$(4y - 6)(16y^2 + 24y + 36)$