NAME _____ DATE _____ PERIOD _____

REVIEW Unit 3 Test quadratic expressions and equations

Add or subtract the polynomials. Write your answer in standard form.

1. $(-x^2 + 3x) - (5x + 2x^2)$
2. $(2m^2 + 6m) + (m^2 - 5m + 7)$
3. $(-4p^2 - p + 9) + (p^2 + 3p - 1)$
4. $(6x^2 - x + 1) - (-4 + 2x^2 + 8x)$
5. $(w^2 - 4w - 1) + (-5 + 5w^2 - 3w)$

Find $(-2x^2 + 5x - 1) - (3x^2 - 4x - 6)$.

- A. $-5x^2 + x + 5$
- B. $-5x^2 + x - 7$
- C. $-5x^2 + 9x + 5$
- D. $-5x^2 + 9x - 7$

Find $(4x^2 + 3x) + (7x^2 - 5x - 6)$.

- A. $11x^2 - 8x - 6$
- B. $11x^4 - 2x^2 - 6$
- C. $11x^2 - 2x - 6$
- D. $9x - 6$

Find each product or simplify each expression.

6. $6pq(3p^2 + 4q)$
7. $-3rt(-2t^2 + 3r)$
8. $-\frac{2}{3}n^2(-9n^2 + 3n + 6)$
9. $-2\ell(3\ell - 4) + 7\ell$
10. $5w(-7w + 3) + 2w(-2w^2 + 19w + 2)$
11. $(x + 7)(x + 4)$
12. $(a + 5)(a - 6)$
13. $(4g + 3h)(2g + 3h)$
14. $(t + 3)(t^2 + 4t + 7)$
15. $(3d + 3)(2d^2 + 5d - 2)$

Find $-8x^3y^2(3xy^4 - 2x^5 - y)$.

- A. $-5x^4y^6 - 10x^8y^2 - 9x^3y^3$
- B. $-24x^4y^6 + 16x^{15}y^2 + 8x^3y^3$
- C. $-24x^4y^6 - 16x^8y^2 + 8x^3y^3$
- D. $-24x^4y^6 + 16x^8y^2 + 8x^3y^3$

Simplify $5a(4a^2 - 2a) + 3a(-2a^2 + 4a)$.

- A. $14a^2 + 2a$
- C. $14a^3 + 2a^2$
- B. $2a^2 + 10a$
- D. $10a^3 + 4a^2$

Find the product $(3x + 3)^2$.

- A. $6x^2 + 18x + 9$
- B. $9x^2 + 18x + 9$
- C. $6x^2 + 12x + 9$
- D. $9x^2 + 12x + 9$

16. $(x - 10)^2$
17. $(b + 6)(b - 6)$
18. $(5w - 4)^2$
19. $(7v - 2)^2$
20. $(3g + 9h)(3g - 9h)$
21. $(5r + p)^2$

Factor each polynomial.

22. $4d^2 + 16$
23. $32a^2 + 24b^2$
24. $9a^3d^2 - 6ad^3$
25. $5x^3y^2 + 10x^2y + 25x$
26. $2a^2 + 3a + 6a + 9$

Factor $20a^4b^2 - 15ab + 30a^2b$

- A. $5a^2b(15a^2b - 10 + 25a)$
- B. $a^2b(20a^2b - 15 + 30a)$
- C. $5(4a^4b^2 - 3ab + 10a^2b)$
- D. $5ab(4a^3b - 3 + 6a)$

Factor $8ac + 12ad + 10bc + 15bd$.

- A. $(2c + 3d) + (4a + 5b)$
- B. $(8ac + 12ad) + (10bc + 15bd)$
- C. $(2c + 3d)(4a + 5b)$
- D. $4a(2c + 3d) + 5b(2c + 3d)$

Factor each polynomial.

27. $x^2 + 14x + 33$

28. $y^2 + 4y - 60$

29. $t^2 + 4t - 45$

30. $x^2 - 11x + 24$

31. $32 + 18r + r^2$

32. $m^2 - mv - 56v^2$

33. $4x^2 + 4x - 3$

34. $10d^2 + 17d - 20$

35. $9r^2 + 15r + 6$

36. $8z^2 + 20z - 48$

Factor $x^2 + 6x - 7$.

A. $(x - 1)(x + 7)$ B. $(x + 3)(x + 3)$

C. $(x - 3)(x - 3)$ D. $(x + 1)(x - 7)$

Factor $6y^2 + 22y - 8$.

A. $(6y - 1)(y + 8)$ B. $2(3y - 2)(y + 2)$

C. $(2y - 4)(3y + 2)$ D. $2(3y - 1)(y + 4)$

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

37. $81 - r^2$

38. $144 - 9f^2$

39. $32 - 8y^2$

40. $9d^2 - 32$

41. $100b^3 - 36b$

42. $m^2 - 6m + 9$

43. $g^2 - 14g + 49$

44. $4d^2 - 4d + 1$

45. $36t^2 - 24t + 4$

Solve $4y^2 - 25 = 0$.

A. $y = -\frac{5}{2}$ B. $y = \frac{5}{2}$

C. $y = \frac{25}{4}$ D. $y = -\frac{5}{2}$ or $y = \frac{5}{2}$

Solve the following: $(q + 2)^2 = 25$.

A. $\{-7\}$ B. $\{3\}$

C. $\{-3, 3\}$ D. $\{-7, 3\}$