

Chapter 8 Test Review

Find the degree of each polynomial.

1. $6x^3 - 5x^4$

4th

2. $15x^{12} - 12x^5$

12th

3. $2x^{12} + 4x^{11} - 52x^3$

12th

Add or subtract the polynomials.

4. $6r^3 + 7r^3$

$13r^3$

5. $(2x^2 + 6x - 4) + (4x^2 - 9x + 11)$

$6x^2 - 3x + 7$

6. $(12x^2 + 5x - 2) - (3x^2 - 7x - 12)$

$9x^2 + 12x + 10$

Multiply the polynomials.

8. $3x(x + 6)$

$3x^2 + 18x$

9. $-z^2(z - 9)$

$-z^3 + 9z^2$

10. $2x(4x^2 - 7x + 6)$

$8x^3 - 14x^2 + 12x$

11. $(x - 2)(3x - 4)$

$3x^2 - 10x + 8$

12. $(3x + 2)(x + 7)$

$3x^2 + 23x + 14$

13. $(4x - 1)(2x^2 - 3x + 5)$

$8x^3 - 12x^2 + 20x - 2x^2 + 3x - 5$

$8x^3 - 14x^2 + 23x - 5$

14. $(x + 6)^2$

$x^2 + 12x + 36$

15. $(2s + 7)^2$

$4s^2 + 28s + 49$

16. $(3x - 8)^2$

$9x^2 - 48x + 64$

17. $(v + 7)(v - 7)$

$v^2 - 49$

18. $(5s - t)^2$

$25s^2 - 10ts + t^2$

19. $(3p^2 + 10q)(3p^2 - 10q)$

$9p^4 - 100q^2$

Factor the following polynomials completely.

20. $12x - 9$

$3(4x - 3)$

21. $24n^3 - 40n^2 + 72n$

$8n(3n^2 - 5n + 9)$

22. $14b^2c^3 + 21bc^5$

$7bc^3(2b + 3c^2)$

23. $k^2 + 9k + 18$

$(k + 6)(k + 3)$

24. $x^2 - 11x + 28$

$(x - 7)(x - 4)$

25. $2r^2 + 24r + 54$

$2(r^2 + 12r + 27)$
 $2(r + 9)(r + 3)$

26. $8h^2 + 36h + 16$

$4(2h^2 + 9h + 4)$
 $4(2h^2 + 8h + 1h + 4)$
 $4(2h(h + 4) + 1(h + 4))$
 $4(2h + 1)(h + 4)$

27. $g^2 - 8g - 48$

$(g - 12)(g + 4)$

28. $m^2 + 2m - 35$

$(m + 7)(m - 5)$

29. $3d^2 - 13d + 12$

$3d^2 - 9d - 4d + 12$
 $3d(d - 3) - 4(d - 3)$
 $(3d - 4)(d - 3)$

30. $8y^2 + 60y + 72$

$4(2y^2 + 15y + 18)$
 $4(2y^2 + 12y + 3y + 18)$
 $4(2y(y + 6) + 3(y + 6))$
 $4(2y + 3)(y + 6)$

31. $9w^2 - 75w - 54$

$3(3w^2 - 25w - 18)$
 $3(3w^2 - 27w + 2w - 18)$
 $3(3w(w - 9) + 2(w - 9))$
 $3(3w + 2)(w - 9)$

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32. The area of a rectangular garden is given by the trinomial $t^2 + 8t - 9$. The garden's length is $t + 9$. What is the garden's width?

$$(t+9)(\quad) = t^2 + 8t - 9$$

$$(t-1)$$

33. The area of a rectangular serving tray is $3x^2 + 17x - 56$. The width of the tray is $x + 8$. What is the length of the tray?

$$(x+8)(\quad) = 3x^2 + 17x - 56$$

$$(3x-7)$$

34. The perimeter of a hexagon is $20t + 7$. Five sides have the following lengths: $2t$, $4t$, $2t - 5$, $4t - 6$, and $5t + 1$. What is the length of the sixth side?

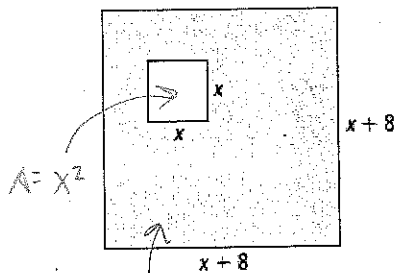
$$(2t) + (4t) + (2t-5) + (4t-6) + (5t+1) = 17t - 10$$

$$\begin{array}{r} 20t + 7 \\ + (17t + 10) \\ \hline \end{array}$$

$$3t + 17$$

The figures below are squares. Find the simplified expression for the area of each shaded region. Write your answers in standard form.

35.



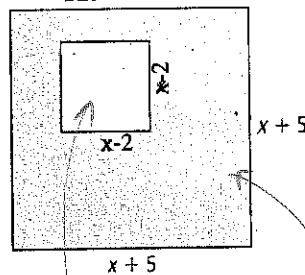
$$A = x^2 + 16x + 64$$

$$(x^2 + 16x + 64) - (x^2)$$

$$A = 16x + 64$$

36.

11.



$$A = x^2 - 4x + 4$$

$$A = x^2 + 10x + 25$$

$$(x^2 + 10x + 25) - (x^2 - 4x + 4)$$

$$A = 14x + 21$$