

CHAPTER

5

TEST

1. Factor: $16t^2 + 24t + 9$
 $(4t + 3)^2$ [5.7A]

2. Multiply: $-6rs^2(3r - 2s - 3)$
 $-18r^2s^2 + 12rs^3 + 18rs^2$ [5.3A]

3. Given $P(x) = 3x^2 - 8x + 1$, evaluate $P(2)$.
 -3 [5.2A]

4. Factor: $27x^3 - 8$
 $(3x - 2)(9x^2 + 6x + 4)$ [5.7B]

5. Factor: $16x^2 - 25$
 $(4x + 5)(4x - 5)$ [5.7A]

6. Multiply: $(3t^3 - 4t^2 + 1)(2t^2 - 5)$
 $6t^5 - 8t^4 - 15t^3 + 22t^2 - 5$ [5.3B]

7. Simplify: $-5x[3 - 2(2x - 4) - 3x]$
 $35x^2 - 55x$ [5.3A]

8. Factor: $12x^3 + 12x^2 - 45x$
 $3x(2x - 3)(2x + 5)$ [5.7D]

9. Solve: $6x(x - 1) = 1 - x$
 $-\frac{1}{6}, 1$ [5.8A]

10. Subtract:
 $(6x^3 - 7x^2 + 6x - 7) - (4x^3 - 3x^2 + 7)$
 $2x^3 - 4x^2 + 6x - 14$ [5.2B]

11. Write the number 0.000000501 in scientific notation.
 5.01×10^{-7} [5.1C]

12. Divide: $\frac{14x^2 + x + 1}{7x - 3}$
 $2x + 1 + \frac{4}{7x - 3}$ [5.4B]

13. Multiply: $(7 - 5x)(7 + 5x)$
 $49 - 25x^2$ [5.3C]

14. Factor: $6a^4 - 13a^2 - 5$
 $(2a^2 - 5)(3a^2 + 1)$ [5.7C]

15. Multiply: $(3a + 4b)(2a - 7b)$
 $6a^2 - 13ab - 28b^2$ [5.3B]

16. Factor: $3x^4 - 23x^2 - 36$
 $(3x^2 + 4)(x - 3)(x + 3)$ [5.7D]

17. Multiply: $(-4a^2b)^3(-ab^4)$
 $64a^7b^7$ [5.1A]

18. Solve: $6x^2 = x + 1$
 $-\frac{1}{3}$ and $\frac{1}{2}$ [5.8A]

19. Use the Remainder Theorem to evaluate
 $P(x) = -x^3 + 4x - 8$ when $x = -2$.
 -8 [5.4D]

20. Simplify: $\frac{(2a^{-4}b^2)^3}{4a^{-2}b^{-1}}$
 $\frac{2b^7}{a^{10}}$ [5.1B]

21. Divide: $\frac{x^3 - 2x^2 - 5x + 7}{x + 3}$
 $x^2 - 5x + 10 - \frac{23}{x + 3}$ [5.4C]

22. Factor: $12 - 17x + 6x^2$
 $(2x - 3)(3x - 4)$ [5.6B]

23. Factor: $6x^2 - 4x - 3xa + 2a$
 $(3x - 2)(2x - a)$ [5.5B]

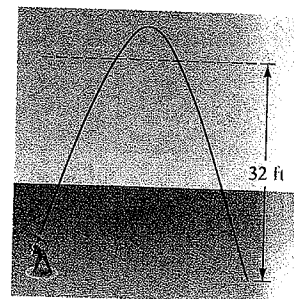
Prime factorization

GCF

$$\begin{array}{r} 30 \\ \wedge \\ 2 \quad 15 \\ \wedge \\ 3 \quad 5 \\ 2 \cdot 3 \cdot (5) \end{array} \quad \begin{array}{r} 215 \\ \wedge \\ 5 \quad 43 \\ (5) \cdot 43 \end{array}$$

24. Write the number of seconds in one week in scientific notation.
 6.048×10^5 s [5.1D]

25. **Sports** An arrow is shot into the air with an upward velocity of 48 ft/s from a hill 32 ft high. How many seconds later will the arrow be 64 ft above the ground? Use the equation $h = 32 + 48t - 16t^2$, where h is the height in feet and t is the time in seconds. 1 s and 2 s [5.8B]



26. **Geometry** The length of a rectangle is $(5x + 1)$ ft. The width is $(2x - 1)$ ft. Find the area of the rectangle in terms of the variable x .
 $(10x^2 - 3x - 1)$ ft² [5.3D]