

CHAPTER 8 TEST Polynomial Functions

1. What is the degree of the monomial $5xy^4z$?
2. For $f(x) = 2x^2 + 4x - 6$ and $g(x) = 2x^2 + 2x + 8$, find $f(x) - g(x)$.
3. Rewrite the polynomial $3x^3 + 2x^4 - 7x + x^2$ in standard form. Identify the leading coefficient and name the polynomial.
4. What is the degree of the polynomial function $h(x) = 7x^3 - x^6 + x$?
5. Evaluate $P(x) = \frac{1}{2}x^3 - x^2 + 8$ for $x = -2$.
6. Multiply $(y - 3)(y^2 - 6y - 9)$.
7. Find the product $a^2b(2a^3b - 5ab^4)$.
8. What is the remainder when $2x^2 + 6x + 3$ is divided by $x + 3$?
9. What is equivalent to $(x^2 + 3x - 28) \div (x - 4)$?
10. Which is a factor of $x^3 + 2x^2 - 9x + 30$? Justify your answer.
A. $x + 2$ B. $x - 3$ C. $x + 5$ D. $x - 6$
11. Factor the expression $4b^3 + 3b^2 - 16b - 12$.
12. A polynomial has zeros $3 - \sqrt{2}$, 4 and $6i$. What is the minimum degree of the polynomial?
13. Using a graphing calculator, graph the function $h(x) = x^4 - 6x^2 + 10$. Sketch the graph and identify the number of real zeros.
14. What is the third term of the binomial expansion of $(x - 4)^6$?
15. Use synthetic division to evaluate $f(x) = 3x^4 - 6x^2 + 12$ for $x = -2$.
16. How many turning points will a quartic function with four real zeros have?
17. Which function could describe the graph at the right?
A. $f(x) = -2x^5 + x - 4$ C. $f(x) = 3x^3 - 9x$
B. $f(x) = -x^3 + 5x^2 + 4x + 3$ D. $f(x) = \frac{1}{4}x^2 + \frac{1}{2}x + 1$
18. Expand $(4 - x)^4$ by using the Binomial Theorem.
19. Find the solutions to the equation $8x^3 - 2x^2 - 43x + 30 = 0$.
20. Describe the end behavior of the function $f(x) = 2x^5 - x^2 + 75$.

