Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Chapter 6 Review

Short Answer

Simplify. Assume that no denominator is equal to zero.

1. $\left(a^5b^5\right)\left(a^5b^3\right)$
2. $\left(-6hi^2j^4\right)\left(3h^3ij^3\right)$
3. $\left(4g^3h^4\right)^3$
4. $\left([3^2]^3g^5h^8\right)^2$
5. $\dfrac{3^{10}}{3^7}$
6. $\dfrac{\left(2a^5b\right)^2}{24b^6}$
7. $\left(\dfrac{2a}{a^2}\right)^{-2}$
8. $\dfrac{36m^{-4}n^6}{4mn^{-2}p^{-4}}$

Find the degree of the polynomial.

9. $10a^3b^2 + 13a^4b^4 - 6a^4b^6$

Find the sum or difference.

10. $\left(5a - 3a^2\right) + (8 + 7a)$
11. $\left(6a - 2b^2 - a\right) + \left(b - 3 + 9a^2\right)$
12. $\left(5a - 3a^2\right) - (-6a - 6)$
13. $\left(11p - 6q^2 - q\right) - \left(q^2 - 5p + 7p^2\right)$

Find the product.

14. $-5r^3\left(4r^2 - 2r - 5\right)$
15. $-2s^2t^4\left(-6s^3t^5 - 6st^4 - 4t\right)$

16. Find $f(2)$ for $f(x) = 3x^2 + 9x - 6$.
17. Find $f(t-6)$ for $f(x) = -2x^2 + 9x + 1$.

Without graphing, describe the end behavior of the graph of the function.

18. $g(x) = 2x^5 - 4x$
19. $f(x) = 1 - 2x^2 - x^3$

Find the relative maxima and relative minima for the function.
Find the y-intercept.

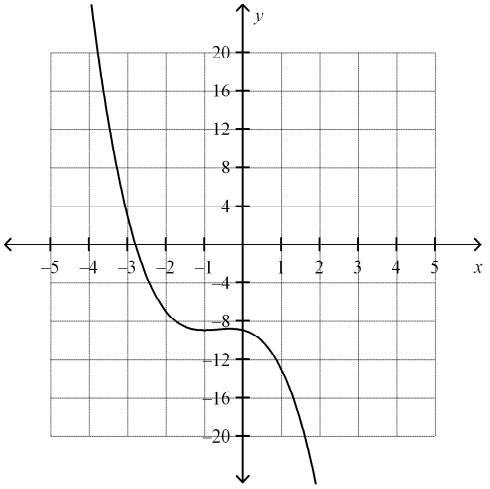
20. $f(x) = 8x^3 + 2x^2 - 8$
21. $f(x) = 11x^3 - 11x^2 + 9$

For the given function, estimate the real zeros to three decimal places.

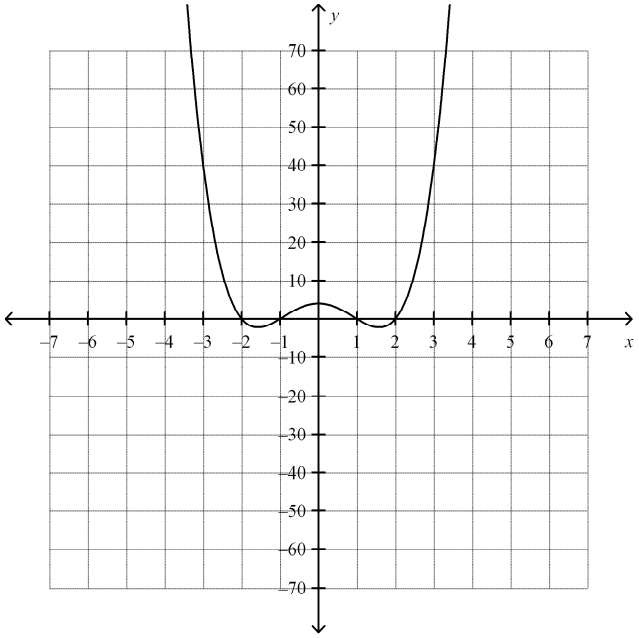
22. $f(x) = -2x^4 - 4x^3 - 2x^2 + 3x + 8$

23. $f(x) = -20x^4 - 7x^3 - 24x^2 + 14x + 15$

24. Describe the end behavior of the graph.



25. Use the graph below to identify the *y*-intercept and zeros.



For the given graph,

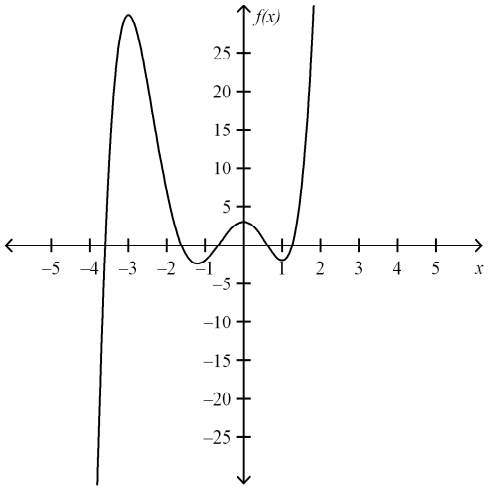
a. *describe the end behavior,*

b. *determine whether it represents an odd-degree or even-degree polynomial function, and*

c. *determine the degree of the polynomial*

d. *state the number of real roots and number of non-real roots.*

26.



27.