

Chapter Test C

For use after Chapter 6

Simplify the expression.

1. $(x^3y^2)^{-1}$ 2. $\frac{x^3y^3}{x^{-2}y^{-2}}$ 3. $\frac{1}{(xy)^{-3}}$ 4. $\frac{x^2y^3}{y^{-4}} \cdot \frac{y^4}{x^{-2}y^{-3}}$

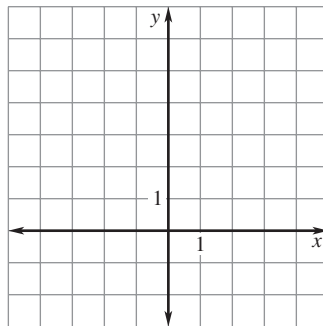
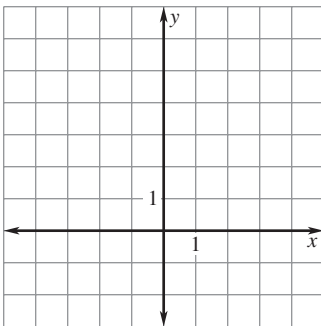
Describe the end behavior of the graph of the polynomial function. Then evaluate for $x = -2, -1, 0, 1, 2$. Then graph the function.

5. $y = x^3 - x^2 - 4x + 4$

6. $y = (x + 1)(x - 2)(x^2 - 3)$

x					
y					

x					
y					



Perform the indicated operation.

7. $(4x^3 + 3x^2 - x + 2) - (5x^3 - 3x^2 + x - 4)$
 8. $(xy + 4)(xy - 3)$ 9. $(2x + y)(x^2 + xy + y^2)$

Factor the polynomial.

10. $16x^2 - 4y^2$ 11. $8y^3 + 1$
 12. $4c^3 + 8c^2d - 4cd^2 - 8d^3$

Solve the equation.

13. $2x^2 = 72$ 14. $4y^3 + 48y^2 = 4y^4$
 15. $(2x^2 + 3)^2 = 4x(x^3 + 6)$

Answers

1. _____
2. _____
3. _____
4. _____
5. Use grid at left.
6. Use grid at left.
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____

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Divide. Use synthetic division if possible.

16. $(x^3 - 2x^2 - 9) \div (x - 3)$

17. $(x^4 - 10x^2 + 2x + 3) \div (x - 3)$

List all the possible rational zeros of f using the rational zero theorem. Then find all the zeros of the function.

18. $f(x) = 2x^3 + x^2 + 2x + 1$

19. $f(x) = x^3 + 2x^2 - 11x - 12$

Write a polynomial function of least degree that has real coefficient, the given zeros, and leading coefficients of 1.

20. $-1, -2, -3$

21. $3, -3, 2i, -2i$

22. Use technology to approximate the real zeros of
 $f(x) = 0.2x^3 - 2x^2 + 6$.23. Identify the x -intercepts, local maximum, and local minimum of the graph of $f(x) = \frac{1}{16}(x - 4)^2(x + 4)^2$. Then describe the behavior of the graph.24. Show that the n th-order finite difference for the function
 $f(x) = x^3 + 2x^2 - x - 2$ of degree n is nonzero and constant.

16. _____

17. _____

18. _____

19. _____

20. _____

21. _____

22. _____

23. _____

24. _____