

Chapter Test A

For use after Chapter 6

Simplify the expression.

1. $\frac{x^5}{x^6}$

2. $(2xy)^3$

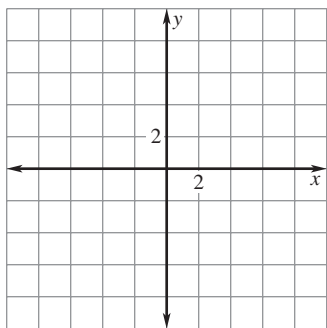
3. $\frac{y^3}{y^{-3}}$

4. $\frac{25x^3y^2}{-5xy}$

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

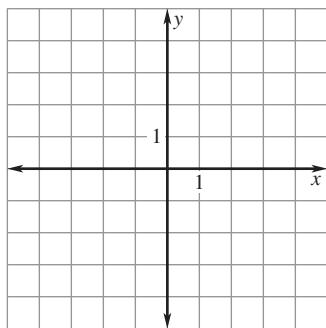
5. $y = 3x^3 - 9x + 1$

x					
y					



6. $y = -x^3 + 4x$

x					
y					

**Perform the indicated operation.**

7. $(x^2 - x + 1) + (x^2 - x + 1)$

8. $(2x + y)(2x - y)$

9. $(x + 1)(x^2 - x + 1)$

Factor the polynomial.

10. $25x^2 - 1$

11. $x^3 + 1$

12. $12x^4y^3 + 20x^2y^2 - 24x^2y$

Solve the equation.

13. $x^2 = 16$

14. $x^4 - 13x^2 + 36 = 0$

15. $x^3 + 4x^2 - x - 4 = 0$

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. $(x^3 - 7x + 6) \div (x - 2)$

17. $(2x^3 + 6x^2 - 8) \div (x - 1)$

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

18. $f(x) = x^2 + 4x + 3$

19. $f(x) = x^3 + x^2 - 10x + 8$

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

20. $-4, -1, 3$

21. $4, 3$

22. Use technology to approximate the real zeros of
 $f(x) = 0.25x^3 - x^2 + 2$.23. Identify the x -intercepts, local maximum, and local minimum of the graph of $f(x) = \frac{1}{3}(x - 3)^2(x + 3)^2$. Then describe the behavior of the graph.24. Show that the n th-order finite differences for the function
 $f(x) = x^2 - 4x + 4$ of degree n are nonzero and constant.

16. _____

17. _____

18. _____

19. _____

20. _____

21. _____

22. _____

23. _____

24. _____