

Chapter Test B

For use after Chapter 6

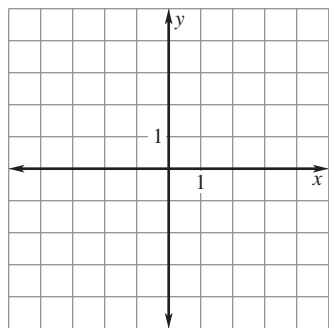
Simplify the expression.

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

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

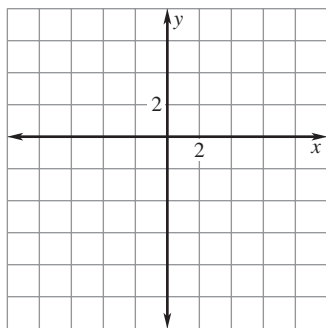
5. $y = -x^3$

x					
y					



6. $y = 2x^3 + x^2 - 8x - 4$

x					
y					



Perform the indicated operation.

7. $(3x^3 - x^2 + 4) - (2x^3 + x^2 + 2)$ 8. $(x - 3y)(x - 4y)$
 9. $(x + 1)(2x^2 - x + 1)$

Factor the polynomial.

10. $100x^2 - 9y^2$ 11. $y^3 - 1$
 12. $15x^3y^3 + 10x^2y^2 + 5xy$

Solve the equation.

13. $x^2 = 81$ 14. $5x^3 = 30x - 25x^2$
 15. $x(x + 5)(x - 4) = x^3$

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. $(x^3 - 28x - 48) \div (x + 4)$

17. $(2x^3 + 11x^2 + 18x + 9) \div (x + 3)$

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

18. $f(x) = x^2 - 6x + 5$

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, -5

21. -2, 2, 3

22. Use technology to approximate the real zeros of $f(x) = 0.35x^3 - 2x^2 + 8$.

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

16. _____

17. _____

18. _____

19. _____

20. _____

21. _____

22. _____

23. _____

24. _____