



NAME

4¹⁵

CHAPTER

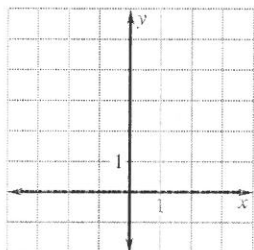
DATE

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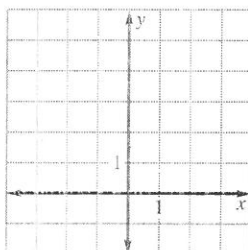
Chapter Test B

Graph the quadratic function.

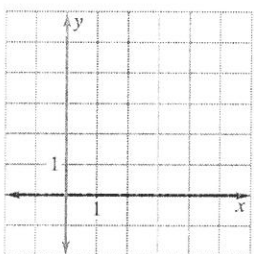
1. $y = x^2 - 1$



2. $y = 2x^2$



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



Solve the quadratic equation by factoring.

4. $x^2 - 8x = 0$

5. $3x^2 - 27 = 0$

6. $2x^2 + 4x - 30 = 0$

Solve the quadratic equation using any appropriate method.

7. $x^2 - 81 = 0$

8. $4x^2 = 48$

9. $4(x + 2)^2 = 16$

Simplify the expression.

10. $4 + \sqrt{-4} + i$

11. $(9 - 7i) - (10 - 6i)$

12. $\frac{3}{7 - i}$

Solve the equation.

13. $x^2 + 1 = -8$

14. $4y^2 + 8 = 2y^2$

Find the absolute value of the complex number.

15. $2 + 4i$

16. $i - 5$

Solve the equation by completing the square.

17. $x^2 - 7x + 12 = 0$

18. $x^2 - 4x + 2 = 0$

Answers

1. Use grid at left.
2. Use grid at left.
3. Use grid at left.
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Chapter Test B

Use the quadratic formula to solve the equation.

19. $x^2 - 10x + 21 = 0$

20. $x^2 - 3x + 5 = 0$

Find the discriminant of the equation and give the number and type of solutions of the equation.

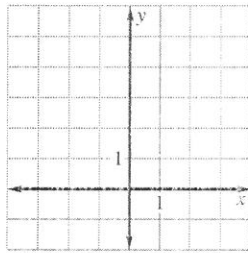
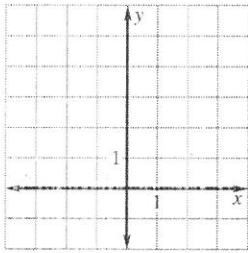
21. $x^2 + 7 = 3x$

22. $4x^2 + 2x - 5 = 0$

Graph the quadratic inequality.

23. $y \geq x^2$

24. $y < 2x^2 - 3$



19. _____

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23. Use grid at left.

24. Use grid at left.

25. _____

25. **Vertical Motion** An object is released into the air at an initial height of 6 feet and an initial velocity of 30 feet per second. The object is caught at a height of 7 feet. Use the vertical motion model,

$$h = -16t^2 + vt + s,$$

where h is the height, t is the time in motion, s is the initial height, and v is the initial velocity, to find how long the object is in motion.



Chapter Test A

For use after Chapter

Simplify the expression.

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

2. $(2xy)^3$

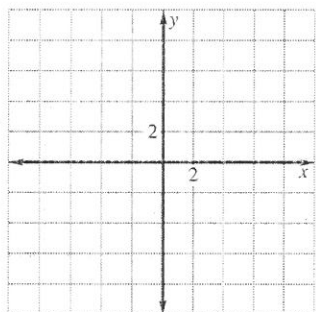
3. $\frac{y^3}{y^{-3}}$

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.

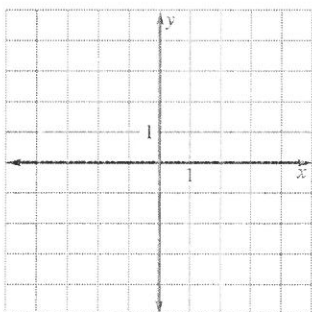
5. $y = 3x^3 - 9x + 1$

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. _____

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5. Use grid at left.

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Chapter Test A

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.

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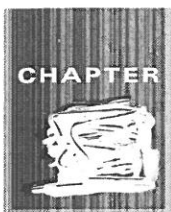
21. _____

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Chapter Test A

For use after Chapter 6

Evaluate the expression without using a calculator.

1. $\sqrt[3]{-8}$ 2. $25^{1/2}$ 3. $27^{2/3}$ 4. $8^{-1/3}$

Simplify the expression. Assume all variables are positive.

5. $(2^{1/3} \cdot 3^{1/3})^3$ 6. $\sqrt[3]{8x^3y^6z^3}$ 7. $\frac{x^3y^3}{(xy)^{-3}}$ 8. $\sqrt{50} + \sqrt{8}$

Perform the indicated operation and state the domain. Let

$f(x) = 3x$ and $g(x) = x - 5$.

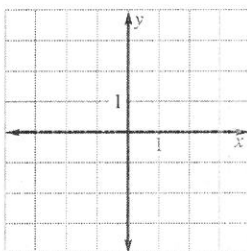
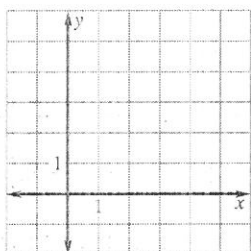
9. $f(x) + g(x)$ 10. $f(x) - g(x)$ 11. $f(x) \cdot g(x)$
 12. $\frac{f(x)}{g(x)}$ 13. $f(g(x))$

Find the inverse function.

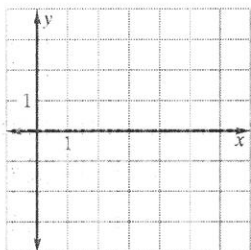
14. $f(x) = x + 9$ 15. $f(x) = \frac{1}{2}x + 2$
 16. $f(x) = 3x + 6$

Graph the function. Then state the domain and range.

17. $f(x) = \sqrt{x}$ 18. $f(x) = x^{1/3}$



19. $g(x) = \sqrt{x - 3}$



Answers

1. _____
2. _____
3. _____
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17. Use grid at left.

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19. Use grid at left.

Chapter Test A

For use after Chapter 6

Solve the equation. Check for extraneous solutions.

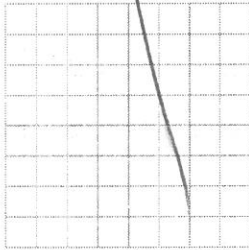
20. $x^{1/2} + 3 = 4$ 21. $3\sqrt{2x + 4} = 12$ 22. $\sqrt[3]{x^2 + 9} = 3$

Exam Scores In Exercises 23–25, suppose your exam scores on the ten exams taken in Algebra 2 are: 65, 75, 84, 72, 90, 92, 86, 95, 84, and 91.

- 23. Find the mean, median, mode, and range of the exam scores.
- 24. Draw a box-and-whisker plot of the exam scores.



- 25. Make a frequency distribution using four intervals beginning with 60–69. Then draw a histogram of the data set.



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25. Use space at left. _____