.

Let A = {q, s, u, v, w, x, y, z}, B = {q, s, y, z}, C = {v, w, x, y, z}, and D = {s}. Specify the following set.

1. $B \cup D$

2. $A \cap B$

For the compound inequality, give the solution set in both interval and graph forms.

3. $-32 \le 7x + 3$ and $4x - 5 < -9$

4. $-3x + 1 \ge 7$ or $7x + 3 \ge -25$

Graph the linear inequality in two variables.

5. $3x + y \le 3$

6. $x + 2y \ge 2$

Graph the compound inequality.

7. $x + y \ge 2$ and $y \le 2$

8. $4x < y + 2$ or $y < -2$

Simplify. Assume that all variables represent positive real numbers.
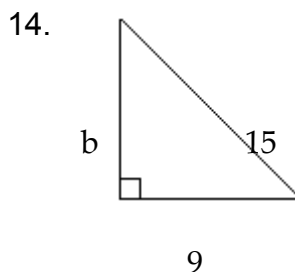
9. $\sqrt[3]{x^{18}}$

10. $-\sqrt[4]{x^{12}}$

Simplify the expression involving rational exponents.

11. $64^{1/3}$

12. $16^{9/4}$

Write with radicals. Assume that all variables represent positive real numbers.

13. $m^{5/4}$

Find the unknown length in the right triangle. Simplify the answer if necessary.

14.

Solve the problem.

15. The length of the diagonal of a rectangle is given by $D = \sqrt{L^2 + W^2}$ where L and W are the length and width of the rectangle. What is the length of the diagonal, D, of a rectangle that is 28 inches long and 24 inches wide? Round your answer to the nearest tenth of an inch, if necesssary.

Simplify. Assume that all variables represent positive real numbers.

16. $-13\sqrt{6} + 2\sqrt{6}$

17. $-9\sqrt{17} - 3\sqrt{17}$

Rationalize the denominator. Assume that all variables represent positive real numbers and that the denominator is not zero.

18. $\dfrac{5}{9 - \sqrt{3}}$

19. $\dfrac{\sqrt{5}}{\sqrt{11} + 3}$

Write the expression in lowest terms. Assume that all variables represent positive real numbers.

20. $\dfrac{36 - 12\sqrt{18}}{32}$

21. $\dfrac{30y + \sqrt{3000y^3}}{3y}$

Solve the equation.

22. $\sqrt{q + 5} = 8$

23. $\sqrt{3x - 9} - 9 = 0$

24. $\sqrt{x + 7} + 5 = x$

25. $\sqrt{2x + 15} - x = 6$

Write the number as a product of a real number and i. Simplify the radical expression.

26. $\sqrt{-64}$

27. $\sqrt{-242}$

Add or subtract as indicated. Write your answer in the form a + bi.

28. $(6 + 4i) - (-5 + i)$

29. $(5 - 8i) + (4 + 2i)$

Multiply.

30. $(9 + 4i)(3 - 8i)$

31. $(7 - 6i)(4 - 4i)$

Write the expression in the form a + bi.
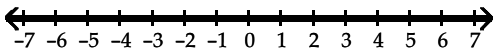
32. $\dfrac{6 + 2i}{9 - 3i}$
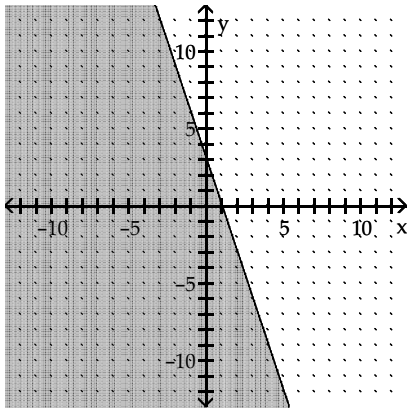
33. $\dfrac{4 - 4i}{5 + 3i}$

1. {q, s, y, z}
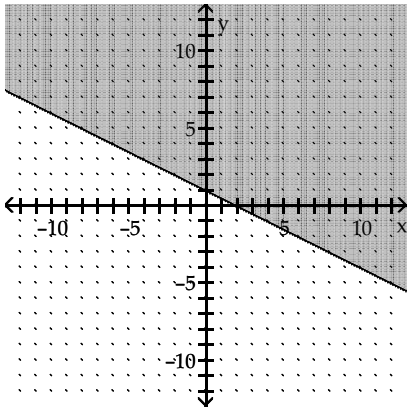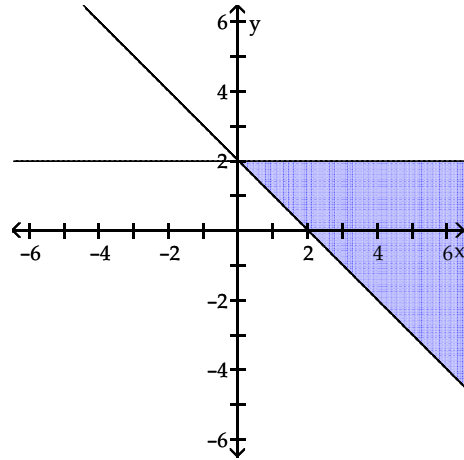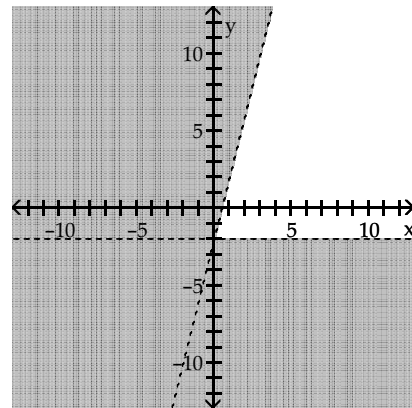2. {q, s, y, z }
3. [-5, -1)
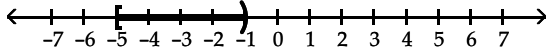
4. $(-\infty, \infty)$

5.

6.

7.

8.

9. x^6
10. $-x^3$
11. 4
12. 512
13. $\left(\sqrt[4]{m}\right)^5$
14. 12
15. 36.9 inches
16. $-11\sqrt{6}$
17. $-12\sqrt{17}$
18. $\dfrac{45 + 5\sqrt{3}}{78}$
19. $\dfrac{\sqrt{55} - 3\sqrt{5}}{2}$
20. $\dfrac{9 - 9\sqrt{2}}{8}$

21. $\dfrac{30 + 10\sqrt{30y}}{3}$

22. {59}

23. {30}

24. {9}

25. {−3}

26. 8i

27. $11i\sqrt{2}$

28. $11 + 3i$

29. 9 - 6i

30. 59 - 60i

31. 4 − 52i

32. $\dfrac{8}{15} + \dfrac{2}{5}i$

33. $\dfrac{4}{17} - \dfrac{16}{17}i$