1. Solve the equation.

$w^2 + 9w + 18 = 0$

The solution set is $\{\square\}$.
(Type an integer or a fraction. Use a comma to separate answers as needed.)

2. Solve the equation.

$36s^2 + 60s + 25 = 0$

The solution set is $\{\square\}$.
(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)

3. Solve the equation.

$3b^2 = 22b + 16$

The solution set is $\{\square\}$.
(Type an integer or a fraction. Use a comma to separate answers as needed.)

4. Use the square root property to solve the equation.

$x^2 = 121$

The solution set is $\{\square\}$.
(Simplify your answer. Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

5. Use the square root property to solve the equation.

$t^2 = 10$

The solution set is $\{\square\}$.
(Simplify your answer. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

6. Use the square root property to solve the equation.

$m^2 = 27$

The solution set is $\{\square\}$.
(Simplify your answer. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

HW5

7. Use the square root property to solve the equation.

$t^2 - 18 = 0$

The solution set is $\{\square\}$.
(Simplify your answer. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

8. Use the square root property to solve the equation.

$4x^2 - 44 = 0$

The solution set is $\{\square\}$.
(Simplify your answer. Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

9. Use the square root property to solve the equation.

$(x + 7)^2 = 81$

The solution set is $\{\square\}$.
(Simplify your answer. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

10. Complete the square to form a true equation.

$x^2 - 12x + \_\_\_ = (x - \_\_)^2$

$x^2 - 12x + \square = (x - \square)^2$
(Simplify your answer. Type an integer or a fraction.)

11. Complete the trinomial so that it is a perfect square. Then factor the trinomial.

$r^2 + 26r$

Find the missing term that completes the square.

$r^2 + 26r + \square$
(Simplify your answer. Type an integer or a fraction.)

The trinomial factors to $\square$.

12. Solve by completing the square.

$x^2 - 5x + 6 = 0$

The solution set is $\{\square\}$.
(Simplify your answer. Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

13. Solve by completing the square.

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

The solution set is $\{\square\}$.
(Simplify your answer. Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

14. Solve the quadratic equation by completing the square.

$x^2 + 12x + 31 = 0$

The solution set is $\{\square\}$.
(Simplify your answer. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

15. Solve by completing the square.

$6x^2 + 17x = 14$

The solution set is $\{\square\}$.
(Simplify your answer. Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

16. Solve the quadratic equation by completing the square.

$x^2 + 11x - 9 = 0$

The solution set is $\{\square\}$.
(Type an exact answer, using radicals and i as needed. Use a comma to separate your answers.)

17. Solve by completing the square.

$2x^2 + 7x - 1 = 0$

The solution set is $\{\square\}$.
(Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

18. Find all complex solutions of the following equation.

$x^2 = -18$

The solution set is $\{\square\}$.
(Type an exact answer, using radicals as needed. Express complex numbers in terms of i. Use a comma to separate answers as needed.)

19. Find all complex solutions of the following equation.

$(r-3)^2 = -2$

The solution set is $\{\square\}$.
(Type an exact answer, using radicals as needed. Express complex numbers in terms of i. Use a comma to separate answers as needed.)

20. Find the imaginary number solutions of the following equation.

$(4k-1)^2 = -27$

The solution set is $\{\square\}$.
(Type an exact answer, using radicals as needed. Express complex numbers in terms of i. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

21. Solve for x using the quadratic formula.

$x^2 - 4x - 21 = 0$

The solution set is $\{\square\}$.
(Simplify your answer. Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

22. Use the quadratic formula to solve the equation.

$2x^2 - 7x - 5 = 0$

The solution set is $\{\square\}$.
(Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

23. Use the quadratic formula to solve the equation.

$2x^2 - 3x = 1$

The solution set is $\{\square\}$.
(Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

24. Use the quadratic formula to solve the equation.

$4k(k+6) = 6$

The solution set is $\{\square\}$.
(Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

25. Use the quadratic formula to solve the following equation.

$(r-2)(r+10) = 9$

The solution set is $\{\square\}$.
(Simplify your answer. Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

26. Solve by using the quadratic formula.

$(x+4)(x-5) = -16$

The solution set is $\{\square\}$.
(Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

27. Use the quadratic formula to solve the equation.

$2x^2 - 5x = -7$

The solution set is $\{\square\}$.
(Type an exact answer, using radicals as needed. Express complex numbers in terms of i. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

28. Use the quadratic formula to solve the equation.

$x(2x+2) = -4$

The solution set is $\{\square\}$.
(Type an exact answer, using radicals as needed. Express complex numbers in terms of i. Use a comma to separate answers as needed.)

29. Use the quadratic formula to solve the equation. (All solutions for the equation are nonreal complex numbers.)

$(2x-4)(5x+4) = -20$

Choose the correct solution set.

○A. $\left\{-\frac{3}{5}+\frac{7}{5}i, -\frac{3}{5}-\frac{7}{5}i\right\}$

○B. $\left\{\frac{3}{5}+\frac{7}{5}i, \frac{3}{5}-\frac{7}{5}i\right\}$

○C. $\{-12+4i, -12-4i\}$

○D. $\{12+28i, 12-28i\}$

○E. $\left\{\frac{3}{5}+\frac{1}{5}i, \frac{3}{5}-\frac{1}{5}i\right\}$

○F. $\{-12+28i, -12-28i\}$

○G. $\left\{-\frac{3}{5}+\frac{1}{5}i, -\frac{3}{5}-\frac{1}{5}i\right\}$

○H. $\{12+4i, 12-4i\}$

30. Solve for x using the quadratic formula.

$x^2 - 10x - 39 = 0$

The solution set is $\{\square\}$.
(Simplify your answer. Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

31. Use the quadratic formula to solve the equation.

$2x^2 - 11x = 1$

The solution set is $\{\square\}$.
(Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

32. Use the quadratic formula to solve the equation. (All solutions for the equation are nonreal complex numbers.)

$$(x-2)(13x+12) = -29$$

Choose the correct solution set.

A. $\left\{\frac{7}{13}+\frac{19}{13}i, \frac{7}{13}-\frac{19}{13}i\right\}$

B. $\{14+38i, 14-38i\}$

C. $\left\{-\frac{7}{13}+\frac{4}{13}i, -\frac{7}{13}-\frac{4}{13}i\right\}$

D. $\left\{\frac{7}{13}+\frac{4}{13}i, \frac{7}{13}-\frac{4}{13}i\right\}$

E. $\{-14+8i, -14-8i\}$

F. $\left\{-\frac{7}{13}+\frac{19}{13}i, -\frac{7}{13}-\frac{19}{13}i\right\}$

G. $\{-14+38i, -14-38i\}$

H. $\{14+8i, 14-8i\}$

33. Solve the following equation. Check your solutions.

$$1-\frac{5}{t}-\frac{14}{t^2}=0$$

The solution set is $\{\square\}$.
(Simplify your answer. Type an integer or a fraction. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

34. Solve the following equation. Check your solutions.

$$10-\frac{1}{t}-\frac{9}{t^2}=0$$

The solution set is $\{\square\}$.
(Simplify your answer. Type an integer or a fraction. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

35. Solve the following equation. Check your solutions.

$$\frac{110}{x}-\frac{110}{x-5}=-\frac{1}{5}$$

The solution set is $\{\square\}$.
(Simplify your answer. Type an integer or a fraction. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

36. Solve the following equation. Check your solutions.

$$\frac{1}{2x-1} - \frac{1}{2x+1} = \frac{1}{12}$$

The solution set is $\{\square\}$.
(Simplify your answer. Type an integer or a fraction. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

37. Solve the following equation. Check your solutions.

$$\frac{3}{2x} - \frac{1}{2(x+10)} = 1$$

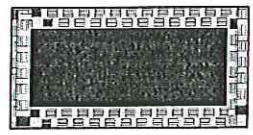
The solution set is $\{\square\}$.
(Simplify your answer. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

38. Solve.

$$3 = \frac{-3}{x-4} + \frac{6}{(x-4)^2}$$

The solution set is $\{\square\}$.
(Simplify your answer. Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

39. Harold Goldstein and his wife Elaine recently installed a built-in rectangular swimming pool measuring 10 feet by 20 feet. They want to add a decorative tile border of uniform width around all sides of the pool. How wide can they make the tile border if they purchased enough tile to cover 216 square feet?



The maximum width of the border can be $\square$ feet.
(Type an exact answer using radicals as needed.)

40. A rectangle has a length 2 m less than twice its width. When 3 m are added to the width, the resulting figure is a square with an area of 64 m^2. Find the dimensions of the original rectangle.

The original rectangle has a width of $\square$ m and a length of $\square$ m.

41. A rectangular piece of metal is 20 in longer than it is wide. Squares with sides 4 in long are cut from the four corners and the flaps are folded upward to form an open box. If the volume of the box is 1200 in^3, what were the original dimensions of the piece of metal?

What is the original width? ☐ in

What is the original length? ☐ in

42. A ball is thrown vertically upward from the ground. Its distance in feet from the ground in t seconds is $s = -16t^2 + 112t$. After how many seconds will the ball be 160 feet from the ground?

☐ seconds
(Use a comma to separate answers as needed.)

43. A ball is thrown vertically upward from the ground. Its distance in feet from the ground in t seconds is $s = -16t^2 + 128t$. After how many seconds will the ball be 192 feet from the ground?

☐ seconds
(Use a comma to separate answers as needed.)

44. The function $D(t) = 15t^2 - 100t$ gives the distance a car going a certain speed will skid in t seconds. Find the time it would take for the car to skid 170 feet.

The time to skid 170 feet is ☐ seconds.
(Round to the nearest tenth.)

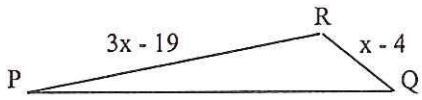
45. A certain bakery has found that the daily demand for bran muffins is $\frac{10800}{p}$, where p is the price of a muffin in cents. The daily supply is $8p - 300$. Find the price at which supply and demand are equal.

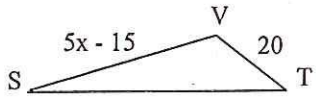
Supply and demand are equal at ☐ cents per muffin.

46. The formula $A = P(1 + r)^2$ gives the amount A in dollars that P dollars will grow to in 2 years at interest rate r (where r is given as a decimal), using compound interest. What interest rate will cause \$2000 to grow to \$2226.05 in 2 years?

The interest rate is ☐%.
(Type an integer or a decimal. Round to the nearest tenth of a percent if needed.)

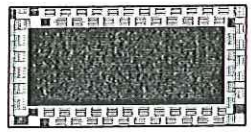
47. Corresponding sides of similar triangles are proportional. Use this fact to find the length of side PR of the following pair of similar triangles. Remember that the length cannot be negative, and there may be more than one solution.





Side PR has a length of ☐. (Use a comma to separate your answers, if necessary.)

48. Harold Goldstein and his wife Elaine recently installed a built-in rectangular swimming pool measuring 23 feet by 47 feet. They want to add a decorative tile border of uniform width around all sides of the pool. How wide can they make the tile border if they purchased enough tile to cover 456 square feet?



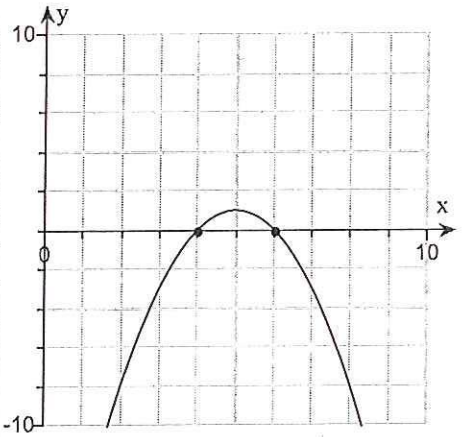
The maximum width of the border can be ☐ feet.
(Type an exact answer using radicals as needed.)

49. Use the given graph to find the solution set of each equation or inequality.

a) $-x^2+10x-24=0$

b) $-x^2+10x-24<0$

c) $-x^2+10x-24>0$



$f(x) = -x^2+10x-24$

a) $-x^2+10x-24=0$

○ $\{2,4\}$ ○ $\{10,24\}$

○ $\{2,6\}$ ○ $\{4,6\}$

b) $-x^2+10x-24<0$

○A. $(-\infty,4]\cup[6,\infty)$

○B. $(4,6)$

○C. $[4,6]$

○D. $(-\infty,4)\cup(6,\infty)$

c) $-x^2+10x-24>0$

○A. $(4,6)$

○B. $(-\infty,4)\cup(6,\infty)$

○C. $[4,6]$

○D. $(-\infty,4]\cup[6,\infty)$

50. Solve the inequality, and graph the solution set.

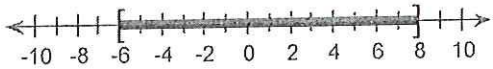
$(z+6)(z-8)>0$

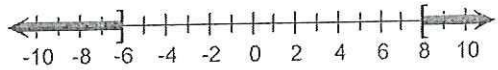
Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

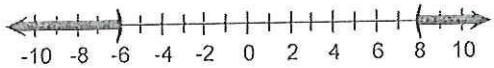
○A. The solution set is ▢.
(Type your answer in interval notation. Simplify your answer. Use integers or fractions for any numbers in the expression.)

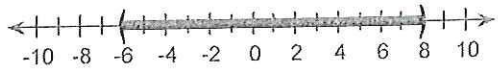
○B. The solution set is ∅.

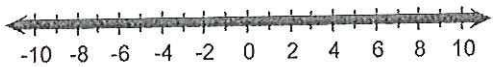
Choose the graph of the solution set.

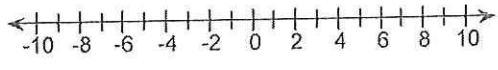
○A.


○B.


○C.


○D.


○E.


○F.


51. Solve the inequality, and graph the solution set.

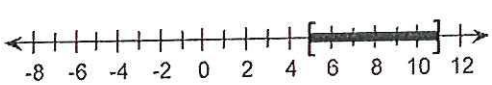
$w^2-16w+55\geq 0$

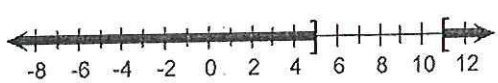
Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

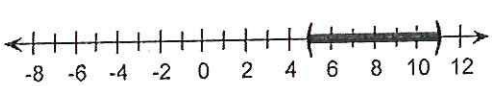
○A. The solution set is ▢.
(Type your answer in interval notation. Simplify your answer. Use integers or fractions for any numbers in the expression.)

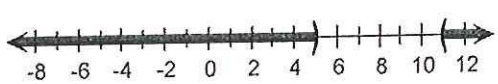
○B. The solution set is ∅.

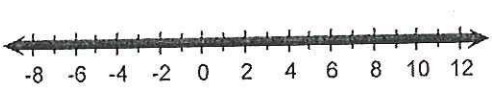
Choose the graph of the solution set.

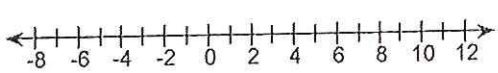
○A.


○B.


○C.


○D.


○E.


○F.


52. Solve the inequality and graph the solution set.

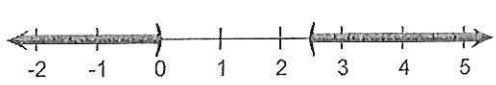
$2k^2 - 5k \leq 0$

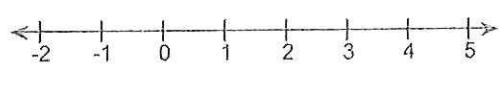
Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

○A. The solution set is ▢.
(Type your answer in interval notation. Simplify your answer. Use integers or fractions for any numbers in the expression.)

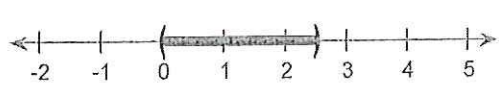
○B. The solution set is ∅.

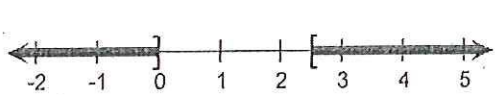
Choose the correct graph of the solution set below.

○A.


○B.


○C.


○D.


○E.


53. Solve the inequality, and graph the solution set.

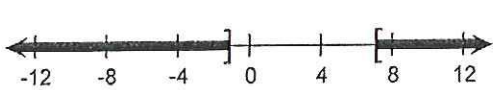
$c^2 - 6c - 8 \geq 0$

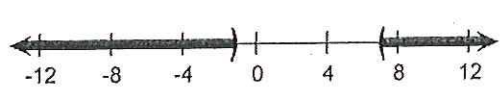
Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

○A. The solution set is ▢.
(Type your answer in interval notation. Simplify your answer. Use integers or fractions for any numbers in the expression.)

○B. The solution set is ∅.

Choose the graph of the solution set.

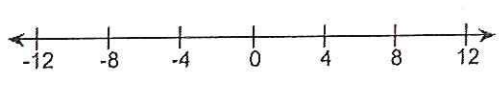
○A.


○B.


○C.


○D.


○E.


○F.


54. Solve the following inequality.

$$(8x+5)^2 \leq -7$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

○A. The solution set is ☐. (Type your answer in interval notation.)

○B. The solution set is ∅.

55. Solve the inequality, and graph the solution set.

$$\frac{x+1}{x+3} > 0$$

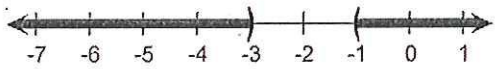
Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

○A. The solution set is ☐.
(Type your answer in interval notation. Simplify your answer. Use integers or fractions for any numbers in the expression.)

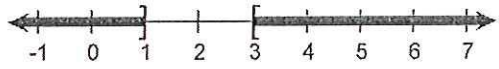
○B. The solution set is ∅.

Choose the graph of the solution set.

○A.

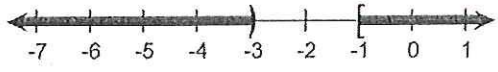


○B.



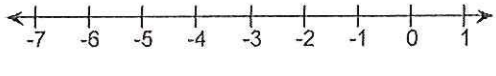
○C.

○D.



○E.

○F.



56. Solve the inequality, and graph the solution set.

$$\frac{4x+5}{x-9} \leq 0$$

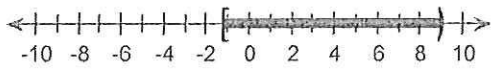
Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

○A. The solution set is ▢.
(Type your answer in interval notation. Simplify your answer. Use integers or fractions for any numbers in the expression.)

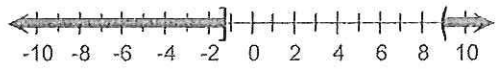
○B. The solution set is ∅.

Choose the graph of the solution set.

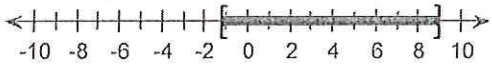
○A.



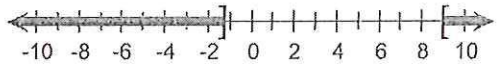
○B.



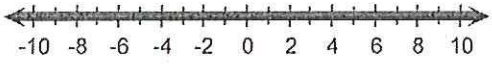
○C.



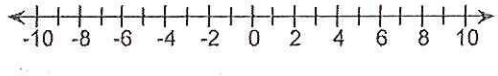
○D.



○E.



○F.



57. Solve the inequality, and graph the solution set.

$$\frac{8}{x-2} \geq 2$$

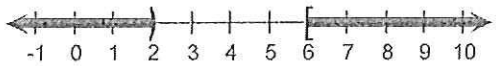
Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

○A. The solution set is ▢.
(Type your answer in interval notation. Simplify your answer. Use integers or fractions for any numbers in the expression.)

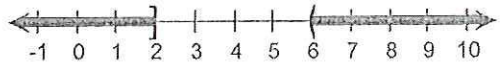
○B. The solution set is ∅.

Choose the graph of the solution set.

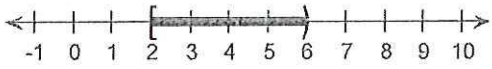
○A.



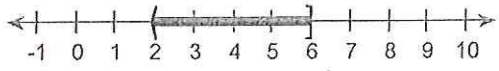
○B.



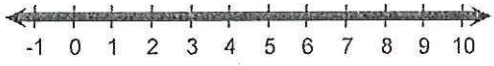
○C.



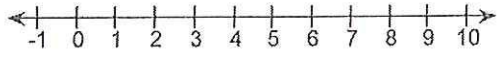
○D.



○E.



○F.



58. Solve the inequality, and graph the solution set.

$$\frac{5}{2t-1} < 2$$

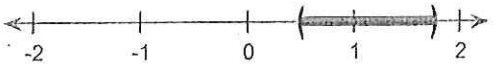
Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

○A. The solution set is ▢.
(Type your answer in interval notation. Simplify your answer. Use integers or fractions for any numbers in the expression.)

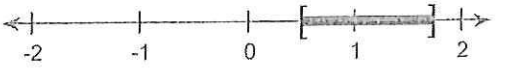
○B. The solution set is ∅.

Choose the graph of the solution set.

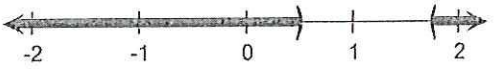
○A.



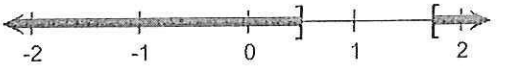
○B.



○C.

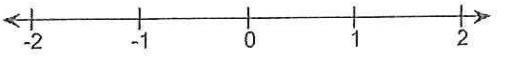


○D.



○E.

○F.



59. Solve the inequality and graph the solution set.

$$\frac{x-4}{x-7} > 3$$

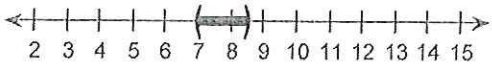
Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

○A. The solution set is ▢.
(Type your answer in interval notation. Simplify your answer. Use integers or fractions for any numbers in the expression.)

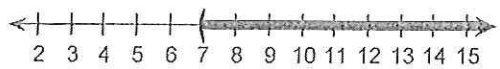
○B. The solution set is ∅.

Choose the graph of the solution set.

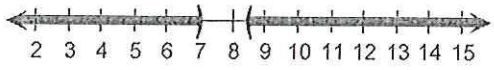
○A.



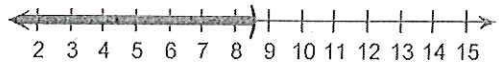
○B.



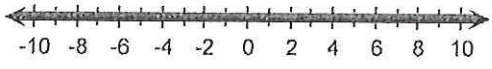
○C.



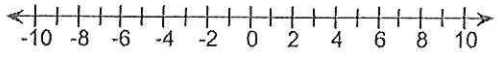
○D.



○E.



○F.



60. Solve the inequality, and graph the solution set.

$$\frac{x-3}{x-10} \leq 3$$

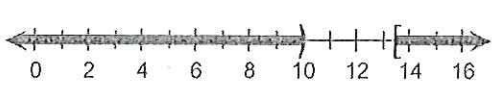
Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

○A. The solution set is ☐.
(Type your answer in interval notation. Simplify your answer. Use integers or fractions for any numbers in the expression.)

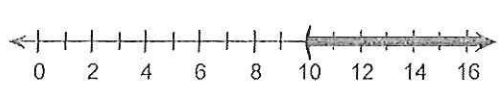
○B. The solution set is ∅.

Choose the graph of the solution set.

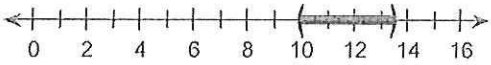
○A.



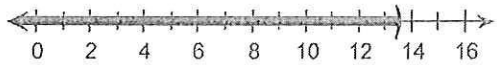
○B.



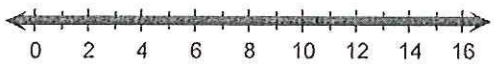
○C.



○D.



○E.



○F.