1. Solve the following absolute value equation.

$$|-5x + 2| = 7$$

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

○ **A.** The solution set is { _____ }.
   (Simplify your answer. Use a comma to separate answers as needed.)

○ **B.** The solution set is { } or ∅.

ID: 13.6.49

2. Solve the following absolute value inequality. Graph the solution set on a real number line.

$$2|x - 8| + 4 < 8$$

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

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

○ **B.** The solution set is { } or ∅.

Choose the correct graph below.

○ **A.**

○ **B.**

○ **C.**

○ **D.**

○ **E.**

○ **F.**
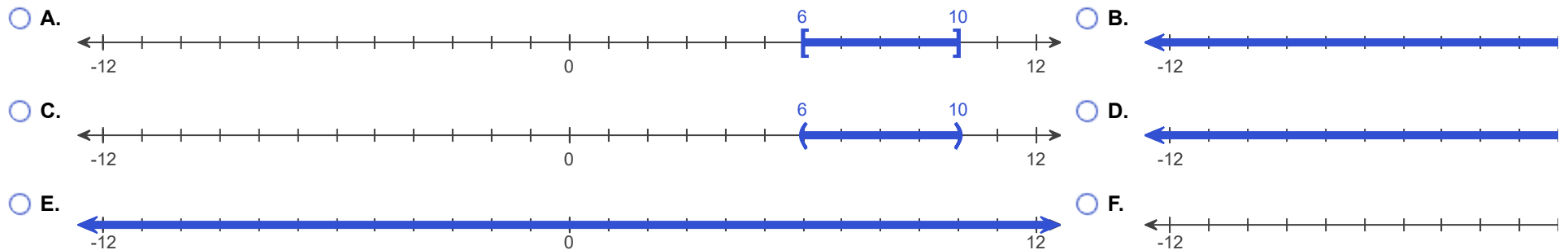
ID: 13.6.77

3. Simplify the radical using the Product Property. Assume that all variables can be any real number.

$$\sqrt{125p^3 q^{16}}$$

$\sqrt{125p^3 q^{16}} = $ _____

(Simplify your answer. Type an exact answer, using radicals as needed.)

ID: 14.4.55

4. Rationalize the denominator. Simplify if possible.

$$\frac{12}{\sqrt{5} - 1}$$

$\dfrac{12}{\sqrt{5} - 1} = $ _____

(Simplify your answer. Type an exact answer using radicals as needed.)

ID: 14.6.37

5. Find the domain of the radical function.

$$H(x) = \sqrt{\frac{x+7}{x-7}}$$

The domain of $H(x) = \sqrt{\dfrac{x+7}{x-7}}$ is _____ .

(Type your answer in interval notation.)

ID: 14.7.35

6. Solve the equation.

$$q^2 + 8q + 23 = 0$$

The solution set is $\left\{\underline{\hspace{2cm}}\right\}$.

(Simplify your answer. Type an exact answer, using radicals and i as needed. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)
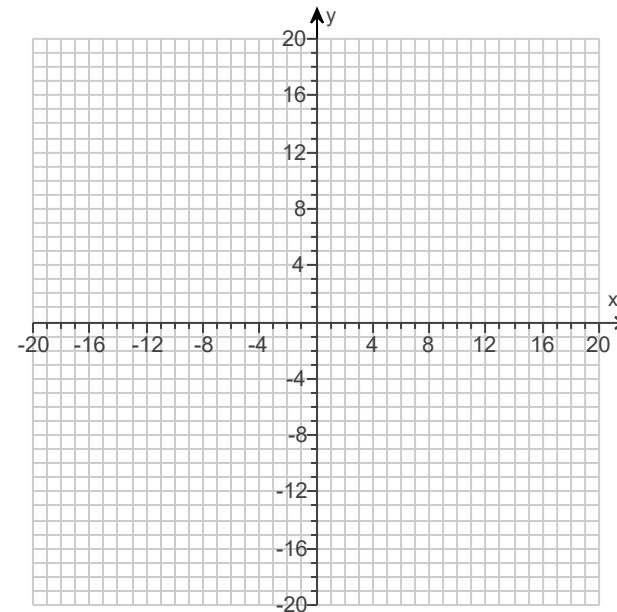
ID: 15.2.57

7. Graph the following quadratic function using its properties. Based on the graph, determine the domain and range of the quadratic function.

$$G(x) = x^2 + 6x + 8$$

Use the graphing tool to graph the function.

The domain of G(x) is $\underline{\hspace{2cm}}$.
(Type your answer in interval notation.)

The range of G(x) is $\underline{\hspace{2cm}}$.
(Type your answer in interval notation.)

ID: 15.4.25

8. Solve the equation and check the solution.

$$\sqrt{4y + 5} - 3 = 2$$

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

○ **A.** The solution set is $\{$ _____ $\}$.
(Simplify your answer. Use a comma to separate answers as needed.)

○ **B.** The solution is the empty set.

ID: 14.8.29

9. Add or subtract, as indicated. Assume all variables are greater than or equal to zero.

$$\sqrt{8x^2} + 3x\sqrt{3} - 2\sqrt{300x^2}$$

$\sqrt{8x^2} + 3x\sqrt{3} - 2\sqrt{300x^2} =$ _____
(Simplify your answer. Do not factor. Type an exact answer, using radicals as needed.)

ID: 14.5.39

10. Graph the quadratic function using its properties. Based on the graph, determine the domain and range of the quadratic function.
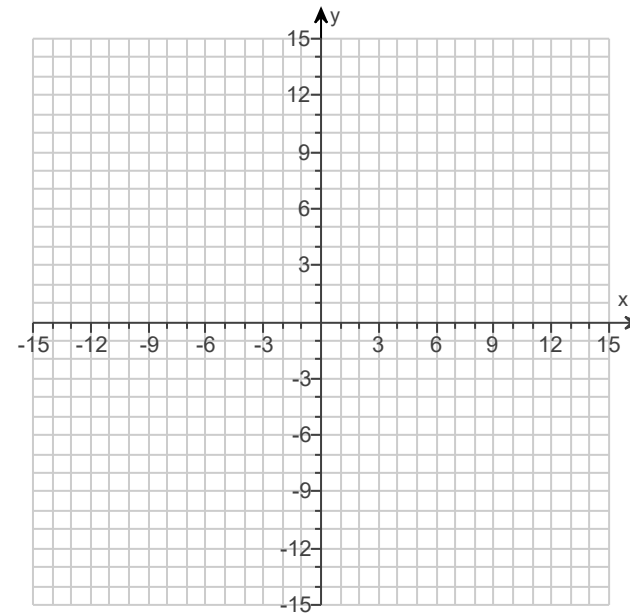
$f(x) = x^2 + 2x + 7$

Use the graphing tool to graph the equation.

What is the domain of the function?

_____

(Type your answer in interval notation.)

What is the range of the function?

_____

(Type your answer in interval notation.)

ID: 15.4.35

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11. Evaluate the following expression, if possible.

$25^{3/2}$

Select the correct choice below and fill in any answer boxes in your choice.

○ **A.** $25^{3/2} = $ _____

○ **B.** The solution is not a real number.

ID: 14.2.77

12. Solve the following equation.

$$\sqrt[3]{4t + 16} = 4$$

Select the correct choice below and fill in any answer boxes in your choice.

   ○ **A.** The solution set is { _____ }. (Use a comma to separate answers as needed.)

   ○ **B.** The solution set is the empty set.

ID: 14.8.23

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13. Simplify the expression.

$$\frac{x^{\frac{2}{3}}}{x^{\frac{6}{5}}}$$

$$\frac{x^{\frac{2}{3}}}{x^{\frac{6}{5}}} = \underline{\hspace{2cm}}$$

(Use positive exponents only. Use integers or fractions for any numbers in the expression.)

ID: 14.3.23

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14. Suppose that the manufacturer of a DVD player has found that, when the unit price is p dollars, the revenue R (in dollars) as a function of the price p is
$R(p) = -2.5p^2 + 800p$. (a) For what price will the revenue be maximized?
(b) What is the maximum revenue?

(a) The price for which the revenue will be maximized is p = $ _____ .
(Simplify your answer.)

(b) The maximum revenue is R = $ _____ .
(Simplify your answer.)

ID: 15.4.75

15. Simplify the radical using the product property.

$$\sqrt{90}$$

$\sqrt{90} =$ _____
(Simplify your answer. Type an exact answer, using radicals as needed.)

ID: 14.4.37

16. Multiply.

$$6\,i\,(6 - 5\,i\,)$$

$6\,i\,(6 - 5\,i\,) =$ _____
(Type your answer in the form $a + b\,i$. Use integers or fractions for any numbers in the expression.)

ID: 14.9.51

17. Find the domain of the radical function.

$$H(z) = \sqrt[3]{3z + 7}$$

The domain is _____ .
(Type your answer in interval notation.)

ID: 14.7.27

18. Complete the square in the expression. Then factor the perfect square trinomial.

$$x^2 - 4x$$

Complete the square.

The expression is _____ .
(Do not factor.)

Factor the result.

The factored expression is _____ .
(Simplify your answer.)

ID: 15.1.47

---

19. Solve the equation using the square root property.

$$5(x + 1)^2 - 7 = 23$$

The solution set is { _____ } .
(Simplify your answer. Type exact answers, using radicals as needed. Type an integer or a fraction. Do not factor. Express complex numbers in terms of i. Use a comma to separate answers as needed.)

ID: 15.1.37

20. Solve the following inequality. Express the solution set in set-builder notation and interval notation. Graph the solution set.

$$|8x + 7| > -2$$

Write the solution set in set-builder notation. Select the correct choice below and, if necessary, fill in the answer boxes to complete your choice.
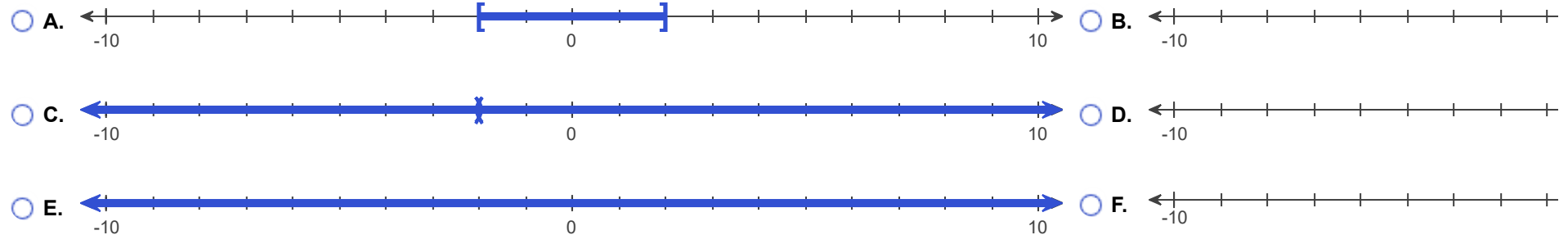
(Use integers or fractions for any numbers in the inequality.)

- A. The solution set is $\{x \mid x < \underline{\hspace{1.5cm}}$ or $x > \underline{\hspace{1.5cm}}\}$.
- B. The solution set is $\{x \mid \underline{\hspace{1.5cm}} < x < \underline{\hspace{1.5cm}}\}$.
- C. The solution set is $\{x \mid x$ is any real number$\}$.
- D. The solution set is $\{\ \}$ or $\varnothing$.

Write the solution set in interval notation. Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solution set is $\underline{\hspace{1.5cm}}$.
  (Use integers or fractions for any numbers in the expression.)
- B. The solution set is the empty set.

Choose the correct graph below.

- A. -10   0   10
- B. -10
- C. -10   0   10
- D. -10
- E. -10   0   10
- F. -10

ID: Quick Check 13.6.40

21. Solve the equation.

$$p^4 + 50 = 15p^2$$

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

○ **A.** The solution set is $\{ \underline{\hspace{3cm}} \}$.
  (Simplify your answer. Type an exact answer, using radicals and i as needed. Use a comma to separate answers as needed.)

○ **B.** The solution set is the empty set.

ID: 15.3.19

1. A. The solution set is $\left\{ -1, \dfrac{9}{5} \right\}$.(Simplify your answer. Use a comma to separate answers as needed.)

2. A. The solution set is __**(6,10)**__.(Simplify your answer. Type your answer in interval notation. Use integers or fractions for any numbers in the expression.)
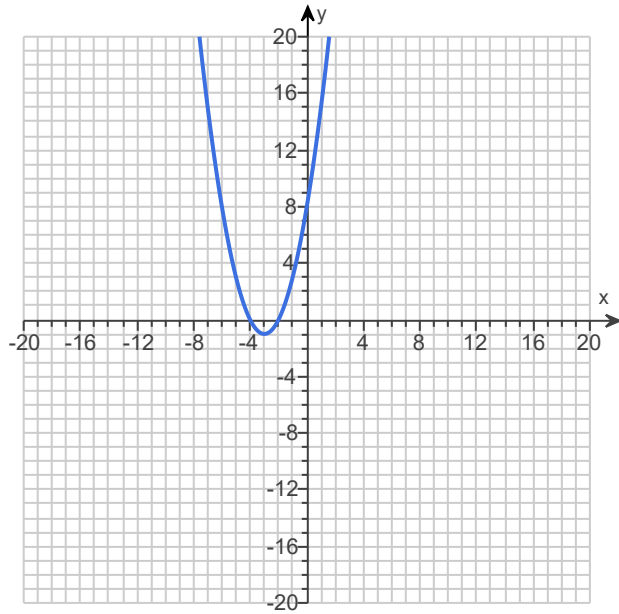
C.
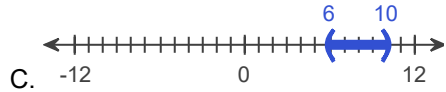
3. $5pq^8 \sqrt{5p}$

4. $3\left(\sqrt{5} + 1 \right)$

5. $(-\infty, -7] \cup (7, \infty)$
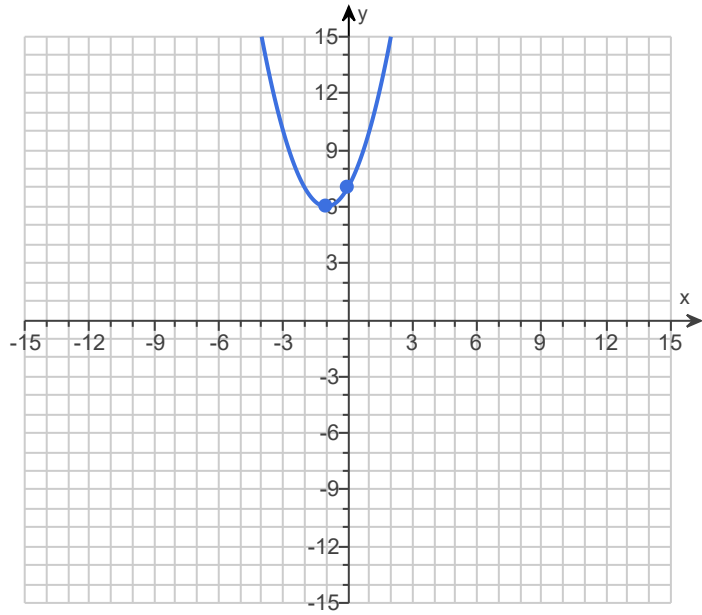
6. $-4 + \sqrt{7}\, i, -4 - \sqrt{7}\, i$

7.

$(-\infty, \infty)$

$[-1, \infty)$

---

8. A. The solution set is $\{ \quad 5 \quad \}$. (Simplify your answer. Use a comma to separate answers as needed.)

---

9. $2x\sqrt{2} - 17x\sqrt{3}$

10.

$(-\infty,\infty)$

$[6,\infty)$

---

11. A. $25^{3/2}$ = _____**125**_____

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12. A. The solution set is {_____**12**_____}. (Use a comma to separate answers as needed.)

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13. $\dfrac{1}{x^{\frac{8}{15}}}$

---

14. 160.00

64,000.00

---

15. $3\sqrt{10}$

16. $30 + 36\,i$

---

17. $(-\infty, \infty)$

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

   $(x - 2)^2$

---

19. $-1 - \sqrt{6}, -1 + \sqrt{6}$

---

20. C. The solution set is {x |x is any real number}.

   A. The solution set is $(-\infty, \infty)$.(Use integers or fractions for any numbers in the expression.)

   E.   -10   0   10

---

21. A. The solution set is $\left\{ -\sqrt{10}, -\sqrt{5}, \sqrt{5}, \sqrt{10} \right\}$.

   (Simplify your answer. Type an exact answer, using radicals and i as needed. Use a comma to separate answers as needed.)