Order the following list of numbers from least to greatest.

$$\frac{58}{5} \, , \, 11.4 \, , \, \sqrt{125} \, , \, 11.\overline{6}$$

A. $11.4 \, , \, \frac{58}{5} \, , \, 11.\overline{6} \, , \, \sqrt{125}$

B. $\sqrt{125} \, , \, \frac{58}{5} \, , \, 11.4 \, , \, 11.\overline{6}$

C. $\sqrt{125} \, , \, 11.4 \, , \, \frac{58}{5} \, , \, 11.\overline{6}$

D. $11.4 \, , \, 11.\overline{6} \, , \, \sqrt{125} \, , \, \frac{58}{5}$

Simplify.

$$\sqrt{242}$$

- ○ **A.** $11\sqrt{2}$

- ○ **B.** $2\sqrt{11}$

- ○ **C.** $121\sqrt{2}$

- ○ **D.** $22\sqrt{11}$

$$\sqrt{119x}$$

The expression above should be further simplified for which value of x?

- A. 217
- B. 2
- C. 59
- D. 62

Simplify: $5\sqrt{63} - 3\sqrt{28}$

- A. $8\sqrt{7}$
- B. $33\sqrt{7}$
- C. $9\sqrt{7}$
- D. $21\sqrt{7}$

The greatest common factor (GCF) of $x^{4k}y^3$ and x^5y^k is x^5y^2. What is the value of k?

○ A. 1

○ B. 2

○ C. 6

○ D. 20

$$65x^2yz^2 \qquad 25x^3y^2$$

What is the greatest common factor (GCF) of the monomials shown above?

A. $325x^3y^2z^2$

B. $5x^3y^2z^2$

C. $5x^2y$

D. $325x^5y^3z^2$

Evaluate the following expression for $x = 65$.

$$5\sqrt{x - 1} + 9$$

A. 31

B. 44

C. 54

D. 49

Simplify: $3(11 - |-7 + 3|) - |8 - 2|^2$

- **A.** -15

- **B.** -33

- **C.** -87

- **D.** -7

When Sammy goes to lunch, he can buy a sandwich for $3.11 and a soft drink for $0.92. Which is a reasonable amount that Sammy would spend on 50 sandwiches and 40 soft drinks?

A. $290

B. $190

C. $340

D. $140

A polynomial expression is shown below.

$$(12x^5 - 36x^4) - (sx^3 - 8)(2x^2 - 6x + 3)$$

The expression is simplified to $-18x^3 + 16x^2 - 48x + 24$.

What is the value of s?

- A. -2
- B. -6
- C. 2
- D. 6

Simplify the following expression.

$$(4x + 4)(x - 6)$$

A. $4x^2 - 20x - 24$

B. $4x^2 - 28x - 10$

C. $4x^2 - 20x - 10$

D. $4x^2 - 28x - 24$

Simplify the expression given below.

$$(12x^3 - 3) - (6x^2 + 5x - 8)$$

A. $12x^3 + 6x^2 + 5x + 11$

B. $6x^3 - 5x + 5$

C. $12x^3 - 6x^2 - 5x + 5$

D. $12x^3 - 5x^2 - 4x + 5$

Factor the following polynomial completely.

$$3x^3 - 27x^2 + 60x$$

A. $3x(x - 4)(x + 5)$

B. $3x(x - 4)(x - 5)$

C. $-3(x^3 + 9x + 20)$

D. $3(x^3 - 9x^2 + 20x)$

Four expressions are shown below.

$$5\sqrt{x} \qquad 5x^2 \qquad \frac{5}{2x} \qquad \frac{x}{5}$$

Which inequality comparing two of the expressions is true when $0.2 \le x \le 0.6$?

A. $\frac{x}{5} > \frac{5}{2x}$

B. $\frac{x}{5} > 5x^2$

C. $5\sqrt{x} > \frac{5}{2x}$

D. $5\sqrt{x} > 5x^2$

Factor the polynomial below.

$$x^2 + 8x + 15$$

A. $(x - 3)(x + 5)$

B. $(x - 3)(x - 5)$

C. $(x + 3)(x + 5)$

D. $(x + 3)(x - 5)$

Simplify the following expression.

$$\frac{x - 5}{-8x^2 + 72x - 160}$$

A. $\dfrac{1}{-8x + 32}$

B. $-8x - 32$

C. $\dfrac{1}{-8x - 32}$

D. $-8x + 32$

Simplify the following expression.

$$\frac{x^2 + 4x - 45}{(x + 9)(x + 5)}$$

A. $\dfrac{x + 9}{x + 5}$

B. $\dfrac{x - 4}{x + 4}$

C. $\dfrac{x - 5}{x + 5}$

D. $\dfrac{x - 4}{x + 10}$

Solve for x.

$$27x + 2 = 24x + 18x + 4$$

A. $x = -\frac{8}{5}$

B. $x = -\frac{2}{5}$

C. $x = -\frac{2}{15}$

D. $x = \frac{1}{9}$

Matt and Casey are wrapping gifts. They bought x rolls of wrapping paper and y packages of ribbon. They spent a total of $11. The equation below describes the relationship between the number of rolls of wrapping paper and the number of packages of ribbon purchased.

$$2x + y = 11$$

The ordered pair (3, 5) is a solution of the equation. What does the solution (3, 5) represent?

- A.   A package of ribbon costs $2 more than a roll of wrapping paper.

- B.   Wrapping paper costs $3 per roll, and ribbon costs $5 per package.

- C.   Matt and Casey purchased 3 rolls of wrapping paper and 5 packages of ribbon.

- D.   Matt and Casey purchased 5 rolls of wrapping paper and 3 packages of ribbon.

Harvey is solving an equation. His work is shown below.

$$5x + (5x + 9) = 57$$
$$(5x + 5x) + 9 = 57$$
$$10x + 9 = 57$$

Which statement describes the procedure Harvey used in his work and which property justifies the procedure?

○ **A.** Harvey regrouped the terms to add 5x and 5x and 9. This procedure is justified by the commutative property.

○ **B.** Harvey regrouped the terms to add 5x and 5x. This procedure is justified by the associative property.

○ **C.** Harvey regrouped the terms to multiply 5x and 5x by 9. This procedure is justified by the associative property.

○ **D.** Harvey regrouped the terms to multiply 5x and 5x. This procedure is justified by the commutative property.
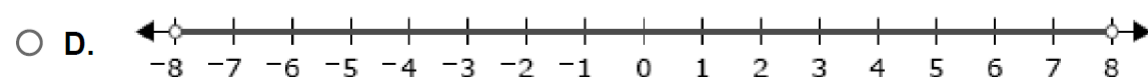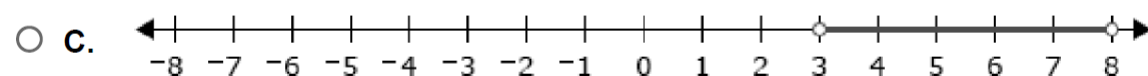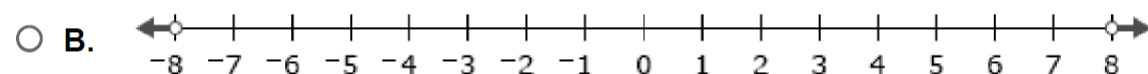
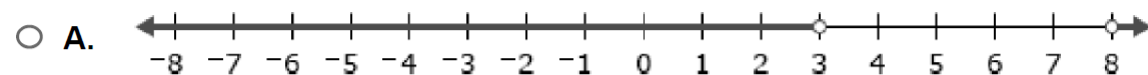The solution set of an inequality is shown below.
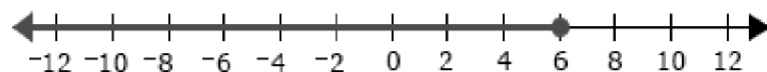
Which inequality has the solution set shown on the number line?

O **A.** $\frac{x}{8} \le \frac{3}{4}$

O **B.** $\frac{-x}{8} \le \frac{3}{4}$

O **C.** $\frac{x}{8} \le \frac{-3}{4}$

O **D.** $\frac{-x}{8} \le \frac{-3}{4}$

Which graph shows the solution set of the inequality |4x − 22| > 10?

○ A.

○ B.

○ C.

○ D.

Mohammad makes and sells jewelry. His monthly goal is to make a profit over $2,500.

- He sells each piece of jewelry for $25.
- He has a monthly fixed cost of $1,725.

The inequality $25x + 1,725 > 2,500$ models this situation. Which **best** describes the meaning of x in the inequality?

A. the number of pieces of jewelry that Mohammad must sell to recover his monthly fixed costs

B. the profit made from selling 25 pieces of jewelry

C. the profit made from 1 month of sales

D. the number of pieces of jewelry Mohammad must sell to reach his goal