

Directions: Answer the following question(s).

1 Which equations are true? Select *all* that apply.

- A. $11\sqrt{3} - \sqrt{12} = 9$
- B. $88\sqrt{7} + \sqrt{29} = 528$
- C. $(5\sqrt{6})(9\sqrt{294}) = 1890$
- D. $47\sqrt{2} + 47\sqrt{18} = 188\sqrt{2}$
- E. $99\sqrt{13} - 6\sqrt{1300} = 83\sqrt{13}$

2 Which radical is the simplest form of $\sqrt{48}$?

- A. $4\sqrt{3}$
- B. $2\sqrt{12}$
- C. $6\sqrt{8}$
- D. $2\sqrt{24}$

3 Which of the following is not a rational number?

- A. The product of 2 and 0.3333...
- B. The sum of $2+\sqrt{3}$ and $5 - \sqrt{3}$
- C. The sum of $\frac{3}{7}$ and $\frac{1}{2}$
- D. The product of 2 and $\sqrt{2}$

4 The height of a bookcase is 1.93 meters. Which expression converts this height to feet? Note: 1 foot is approximately 0.3048 meters and 1 meter is approximately 3.2808 feet.

- A. $1.93m \times \left(\frac{0.3048ft}{1m}\right)$
- B. $1.93m \times \left(\frac{3.2808ft}{1m}\right)$
- C. $1.93m \times \left(\frac{1m}{0.3048ft}\right)$
- D. $1.93m \times \left(\frac{1m}{3.2808ft}\right)$

5 Kyle has entered into a 5K marathon (5 kilometers). He wanted to figure out how many miles are in the marathon. If there are 1000 meters in 1 kilometer, and 1 mile equals approximately 1609.34 meters, how many miles will Kyle run in the marathon? Round your answer to the nearest hundredth place.

- A. 3.11 miles
- B. 321.87 miles
- C. 1000 miles
- D. 5000 miles

6

7 Mark is typing up the final copy of his essay for class. He can type 20 words per minute. If his final essay is 5356 words in length, how long did it take Mark to finish typing his essay? Round to the nearest minute.

- A. 89 hours and 16 minutes
- B. 5 hours
- C. 4 hours and 28 minutes
- D. 4 hours

8 Mia measures the length of a leaf with her ruler.

Which of the following values is *most likely* the value she measured with her ruler?

- A. 0.0048 m
- B. 0.157 ft
- C. 4.8 cm
- D. 48.41 mm

9 Maria is twice as old as Sue. If x represents Sue's age, which expression represents how old Maria will be in three years?

- A. $2x$
- B. $x + 3$
- C. $3x - 2$
- D. $2x + 3$

Directions: Answer the following question(s).

- 10 The equation $25 - 3.99p$ represents the amount of money Itzel has left over after buying p bottles of nail polish.

What does the constant 25 represent in this context?

- 11 The table below shows the cost of different food items in the food court.

Food Item	Cost Per Item
Churro	\$2.75
Cinnamon roll	\$3.19
Fruit salad	\$3.39
Sundae	\$2.35

Steven bought treats for his friends at the mall food court. Where m , n , p , and q are whole numbers, the amount Steven spent on the treats is equal to the expression below.

$$2.35m + 2.75n + 3.19p + 3.39q$$

Write the term from the expression that represents the amount of money Steven spent on cinnamon rolls.

- 12 Students at a bake sale sell bags of cookies for \$2.35 each and bags of miniature muffins for \$1.75 each. While selling their baked goods, the students also received a \$20 donation. The amount of money the students make from selling c bags of cookies and m bags of muffins can be modeled by the expression $2.35c + 1.75m + 20$. Interpret the expression $2.35c + 1.75m$ in this context.
- A. The expression $2.35c + 1.75m$ represents the money earned from selling c bags of cookies.
- B. The expression $2.35c + 1.75m$ represents the money earned from selling m bags of muffins.
- C. The expression $2.35c + 1.75m$ represents the money earned from selling c bags of cookies and m bags of muffins.
- D. The expression $2.35c + 1.75m$ represents the money earned from selling one bag of cookies and one bag of muffins.

- 13 Simplify: $(7x - 4)^2$

- A. $49x^2 - 56x + 16$
- B. $49x^2 - 16$
- C. $x^2 - 1$
- D. $49x^2 + 16$

- 14 Which expressions are equivalent to $x^4 + 5x^3 - 43x^2 + 4x - 9$? Select *all* that apply.

- A. $(-6x^4 - 8x^3 - 34x^2 + 4x - 23) + (7x^4 + 13x^3 - 9x^2 + 14)$
- B. $(x^4 + 2x^3 - 203x^2 + 9x - 13) + (x^4 + 3x^3 + 160x^2 - 5x + 4)$
- C. $(3x^4 + 19x^3 - 7x^2 + x - 193) - (2x^4 + 14x^3 + 36x^2 - 3x - 184)$
- D. $(13x^4 - 11x^3 + 8x^2 + 5x - 19) - (-12x^4 + 16x^3 - 51x^2 - x + 10)$
- E. $(-8x^4 - 31x^3 - 11x^2 - 8x - 43) - (-9x^4 + 36x^3 - 32x^2 + 12x + 34)$

- 15 The sum of two polynomials is shown below.

Polynomial p : $3x + 6$

Polynomial q : $4x^3 - 8x$

$$p + q = (3x + 6) + (4x^3 - 8x) = 4x^3 - 5x + 6$$

How does the sum $4x^3 - 5x + 6$ demonstrate the closure of polynomials under addition? Explain your answer.

- 16 What is the result of subtracting $4x^2 + 3xy + 2y^2$ from $5x^2 + 3xy + 6y^2$?

- A. $x^4 + 4y^4$
- B. $-x^2 - 4y^2$
- C. $-x^4 - 4y^4$
- D. $x^2 + 4y^2$

Directions: Answer the following question(s).

17 What is the sum of $4a^2 - 7a - 5$ and $-8a^2 - 2a + 7$?

- A. $-4a^2 - 9a + 2$
- B. $4a^4 - 5a^2 + 2$
- C. $-4a^4 - 9a^2 + 2$
- D. $4a^2 - 5a + 2$