

UNIT 1: RELATIONSHIPS BETWEEN QUANTITIES AND EXPRESSIONS

1.1 Use Properties of Rational and Irrational Numbers

1. Look at the radical.

$$-8\sqrt{726}$$

What is a rewritten form of the radical?

- A. $-88\sqrt{6}$
- B. -90.75
- C. $-986\sqrt{6}$
- D. $-2,904$

2. Look at the expression.

$$2\sqrt{8} \cdot \sqrt{20}$$

Which of these is equivalent to this expression?

- A. $2\sqrt{28}$
- B. 5
- C. $8\sqrt{10}$
- D. $32\sqrt{10}$

3. Which sum is rational?

- A. $\pi + 18$
- B. $\sqrt{25} + 1.75$
- C. $\sqrt{3} + 5.5$
- D. $\pi + \sqrt{2}$

4. Which product is irrational?

- A. $\sqrt{2} \cdot \sqrt{50}$
- B. $\sqrt{64} \cdot \sqrt{4}$
- C. $\sqrt{9} \cdot \sqrt{49}$
- D. $\sqrt{10} \cdot \sqrt{8}$

Answers to Unit 1.1 Sample Items

1. A 2. C 3. B 4. D

1.2 Reason Quantitatively and Use Units to Solve Problems

1. A rectangle has a length of 12 meters and a width of 400 centimeters. What is the perimeter, in cm, of the rectangle?
 - A. 824
 - B. 1,600
 - C. 2,000
 - D. 3,200

2. Jill swam 200 meters in 2 minutes 42 seconds. If each lap is 50 meters long, which time is her estimated time, in seconds, per lap?
 - A. 32
 - B. 40
 - C. 48
 - D. 60

Answers to Unit 1.2 Sample Items

1. D 2. B

1.3 Interpret the Structure of Expressions

1. In which expression is the coefficient of the n term -1 ?
 - A. $3n^2 + 4n - 1$
 - B. $-n^2 + 5n + 4$
 - C. $-2n^2 - n + 5$
 - D. $4n^2 + n - 5$

2. The expression s^2 is used to calculate the area of a square, where s is the side length of the square. What does the expression $(8x)^2$ represent?
 - A. the area of a square with a side length of 8
 - B. the area of a square with a side length of 16
 - C. the area of a square with a side length of $4x$
 - D. the area of a square with a side length of $8x$

Answers to Unit 1.3 Sample Items

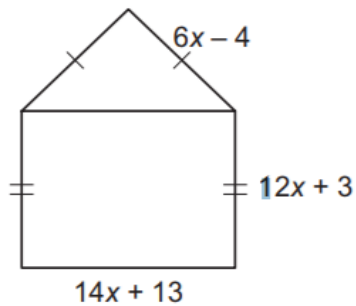
1. C 2. D

1.4 Perform Arithmetic Operations on Polynomials

1. What is the product of $7x - 4$ and $8x + 5$?

- A. $15x + 1$
- B. $30x + 2$
- C. $56x^2 + 3x - 20$
- D. $56x^2 - 3x + 20$

2. A model of a house is shown.



What is the perimeter, in units, of the model?

- A. $32x + 12$
 - B. $46x + 25$
 - C. $50x + 11$
 - D. $64x + 24$
3. Which expression has the same value as the expression $(8x^2 + 2x - 6) - (5x^2 - 3x + 2)$?
- A. $3x^2 - x - 4$
 - B. $3x^2 + 5x - 8$
 - C. $13x^2 - x - 8$
 - D. $13x^2 - 5x - 4$

Answers to Unit 1.4 Sample Items

1. C 2. C 3. B