Polynomial Operations
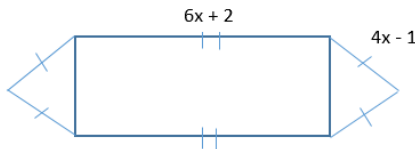
1. What is the product of 8x – 3 and 4x + 7?

2. Find the product of $(2x - 3)(x^2 - 5x + 7)$

3. The length of a rectangle is 4 units longer than the width.
   a. If the width of the rectangle is w, what expression would represent the length?

   b. What expression would represent the perimeter?

4. Simplify $(9h^2 + 2h - 6) - (3h^2 - 5h + 1)$

5. A model of a garden is shown. What is the perimeter of the model, in terms of x?

6. In 2014, the number of apples harvested at a local farm was represented by the expression $8x^2 + 2x + 3$. In 2015, the number of apples harvested was represented by the expression $6x^2 + 5x + 4$. Write a polynomial that represents the total number of apples harvested in 2014 and 2015, in terms of x.

Dimensional Analysis
Equivalence Statements: 2.54 cm = 1 in ; 12 in = 1 ft ; 365 days = 1 yr ; 60 min = 1 hr ; 60 s = 1 min ; 100 cm = 1 m ; 1 cm = 10 mm

7. A rectangle has a length of 14 meters and a width of 600 centimeters. What is the perimeter, in centimeters, of the rectangle?

8. Convert 70 miles per hour to feet per second.

9. Convert 8.2 centimeters per year to millimeters per day.

10. What is the equivalent of 3.5 yards in centimeters?

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Unit 1 Test Study Guide
Radical Operations

11. Look at the radical.

$$-4\sqrt{60}$$

What is the rewritten form of the radical?

a. $-2\sqrt{15}$ b. $-6\sqrt{15}$ c. $-8\sqrt{15}$ d. $-8\sqrt{8}$

12. $-3\sqrt{54} - 5\sqrt{54}$ 13. $-2\sqrt{6} + 5\sqrt{24}$

14. $\sqrt{27} + 5\sqrt{12}$ 15. $-4\sqrt{18} - \sqrt{8}$

16. Look at the expression.

$$3\sqrt{10} \cdot \sqrt{24}$$

Which of these is equivalent to this expression?

a. $3\sqrt{34}$ b. $4\sqrt{5}$ c. $12\sqrt{15}$ d. $7\sqrt{15}$

17. $\sqrt{3}(\sqrt{8} + 5)$ 18. $(\sqrt{3} - 2)(\sqrt{3} + 3)$

19. Which product is irrational?

a. $\sqrt{6} \cdot \sqrt{6}$ b. $\sqrt{49} \cdot \sqrt{25}$ c. $\sqrt{2} \cdot \sqrt{32}$ d. $\sqrt{12} \cdot \sqrt{2}$

20. Which sum is rational?

a. $\sqrt{5} + 2.1$ b. $\sqrt{9} + 6.25$ c. $\sqrt{3} + \pi$ d. $\pi + 12$