

## QUADRATIC APPLICATIONS 1

Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. Which of the following equations could be used to solve this problem?

The product of two consecutive integers is 420.

- A.  $n(n - 1) = 420$       B.  $n + (n - 1) = 420$   
 C.  $n + (n - 2) = 420$       D.  $2n - 1 = 420$

2. The sum of the squares of two consecutive integers is 85. Using  $n$  to represent the smaller of the two consecutive integers, express this statement in algebraic form.

- A.  $n^2 + (n + 1)^2 = 85$       B.  $n^2 + 2(n + 1) = 85$   
 C.  $2n^2 + (n + 1)^2 = 85$       D.  $n + (n + 1) = 85^2$

3. The altitude of a triangle is 5 cm less than the base. The area is  $42 \text{ cm}^2$ . Which equation best represents the situation where  $x$  represents the altitude of the triangle?

- A.  $x(x + 5) = 42$       B.  $\frac{x(x - 5)}{2} = 42$   
 C.  $\frac{x(x + 5)}{2} = 42$       D.  $x(x - 5) = 42$

4. The length of a rectangle is 12 more than the width. The area is 325. Which equation best represents the situation if  $W$  represents the width of the rectangle?

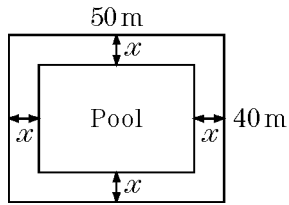
- A.  $w^2 - 12w - 325 = 0$       B.  $w^2 + 12w - 325 = 0$   
 C.  $w^2 + 12w + 325 = 0$       D.  $w^2 - 325w + 12 = 0$

5. Martin has a flower garden that is 20 ft long and 15 ft wide. He wants to put a uniform walk around the garden and increase the area by  $74 \text{ ft}^2$ . Which equation best represents the situation if  $x$  is the width of the walk?

- A.  $300 - (20 + 2x)(15 + 2x) = 74$   
 B.  $(20 + 2x)(15 + 2x) + 74 = 300$   
 C.  $(20 + 2x)(15 + 2x) - 300 = 74$   
 D.  $(20 + 2x)(15 + 2x) = 74$

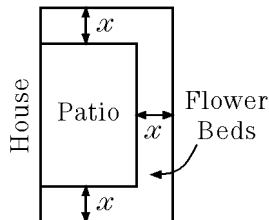
6. The perimeter of a rectangular room is 78 feet. If the length is increased by 2 feet and the width is increased by 3 feet, the area of the new room will be 480 square feet. Find the dimensions of the new room.

7. Charlene wants to center a pool in her back yard. The yard currently measures 50 m by 40 m. She wants to use  $\frac{1}{2}$  of the yard. Which equation best represents how to find the width of the yard surrounding the pool?



- A.  $4x^2 - 180x + 1000 = 0$   
 B.  $4x^2 + 180x + 1000 = 0$   
 C.  $2x^2 - 90x + 1000 = 0$   
 D.  $4x^2 - 180x + 2000 = 0$

8. Henry has a patio next to his house that is 15 ft by 10 ft. He wants to put a uniform flower bed around the patio. The area of the flower bed is  $100 \text{ ft}^2$ . Which equation best represents the situation?



- A.  $4x^2 + 35x - 100 = 0$     B.  $2x^2 - 35x - 100 = 0$   
 C.  $2x^2 + 35x + 100 = 0$     D.  $2x^2 + 35x - 100 = 0$

9. If the width of a rectangle is four feet less than the length and the area is 165 square feet, find the length of the rectangle.

- A. 7 feet    B. 11 feet    C. 15 feet    D. 83 feet

10. The length of a rectangle is 3 times the width. If the length and width are both increased by 4 the new area is 555 square units. What was the original area?

- A. 521    B. 476    C. 363    D. 333

11. Find two numbers such that the sum of their squares multiplied by their sum is 40, and the difference of their squares multiplied by their difference is 16.

12. A rectangular piece of cardboard is twice as long as it is wide. From each of its four corners a square piece 3 inches on a side is cut out. The flaps are then turned up to form an open box. If the volume of the box is 168 cubic inches, find the original dimensions of the piece of cardboard.

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1.  
Answer: A  
Objective: A.CED.1
2.  
Answer: A  
Objective: A.CED.1
3.  
Answer: C  
Objective: A.CED.1
4.  
Answer: B  
Objective: A.CED.1
5.  
Answer: C  
Objective: A.CED.1
6.  
Answer: 20 feet by 24 feet, or 24 feet by  
20 feet  
Objective: A.CED.3
7.  
Answer: A  
Objective: A.CED.1
8.  
Answer: D  
Objective: A.CED.1
9.  
Answer: C  
Objective: A.CED.1
10.  
Answer: C  
Objective: A.CED.3
11.  
Answer: 1, 3  
Objective: A.CED.3
12.  
Answer: 10 in., 20 in.  
Objective: A.CED.3