

- 3 Lena sells earrings from a booth at the arts fair. She pays \$200 to rent the booth. She makes \$5 from each pair of earrings she sells. Her profit,  $P$ , can be found using the following equation, where  $n$  is the number of pairs of earrings sold.

$$P = 5n - 200$$

How many pairs of earrings must Lena sell to earn a profit of \$450?

- (A) 100
- (B) 130
- (C) 140
- (D) 150

- 4 Given the relation  $\{(0, 5), (9, 2), (7, 1), (6, 3)\}$ , what is the sum of all the elements in the range?

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- 5 What is the value of  $x$  in the equation  $-3x + 19 = 2x + 106$ ?

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- 6  $\sqrt{243} - \sqrt{75} = \sqrt{n}$ . What is the value of  $n$ ?

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- 7 What is the solution of the system of equations shown below?

$$\begin{cases} y = 4x - 10 \\ y = 2x \end{cases}$$

- (A) (5, 10)
- (B) (0, -10)
- (C) (-2, -4)
- (D) (6, 11)

## Answers

**3** (B)

To find the correct number of pairs of earrings,  $n$ , solve the equation  $450 = 5n - 200$ .

Add 200 to each side to get  $650 = 5n$ . Then  $n = \frac{650}{5} = 130$ .

**4** The correct answer is 11. The range is the set of all second members of each ordered pair. Thus, the range is  $\{5, 2, 1, 3\}$ . The sum of these numbers is 11.

**5** The correct answer is  $-17.4$ . Subtract  $2x$  from each side to get  $-5x + 19 = 106$ . Next, subtract 19 from each side, which leads to  $-5x = 87$ . Then  $x = \frac{87}{-5} = -17.4$ .

**6** The correct answer is 48.  $\sqrt{243} = \sqrt{81} \times \sqrt{3} = 9\sqrt{3}$  and  $\sqrt{75} = \sqrt{25} \times \sqrt{3} = 5\sqrt{3}$ . Thus,  $9\sqrt{3} - 5\sqrt{3} = 4\sqrt{3} = \sqrt{16} \times \sqrt{3} = \sqrt{48}$ .

**7** (A)

Substitute the expression for  $y$  from the second equation into the first equation.

Then  $y = 4x - 10$  becomes  $2x = 4x - 10$ . Subtract  $4x$  from each side to get  $-2x = -10$ .

Then  $x = \frac{-10}{-2} = 5$ . Using the second equation,  $y = (2)(5) = 10$ . Therefore, the solution is the point  $(5, 10)$ .