

Variables That Change Together: Input and Output

Grade 6 math · Test Answer Key · Standards: 6.EE.C.9

Award the points shown in each scoring line. Accept equivalent equations such as $y = x \cdot 7$. Give full credit for a correct final answer with a clear equation, and half credit when the method is right but one calculation slip appears.

Standards: 6.EE.C.9 · **Level:** Grade 6

Question 1 Identify the variables (2 points)

- a. Independent: hours rented. Dependent: cost.
- b. Independent: seconds running. Dependent: distance covered.

(a) hours → cost; (b) seconds → distance

Scoring: 1 point for each correct pair of variables.

Question 2 Complete the table (2 points)

$6.5 \times 2 = 13$. $6.5 \times 4 = 26$. $6.5 \times 10 = 65$.

x	2	4	10
y	13	26	65

13, 26, 65

Scoring: 2 points for all three values; 1 point if exactly two are correct.

Question 3 Equation from a table (3 points)

- a. $21 \div 3 = 7$, $35 \div 5 = 7$, $56 \div 8 = 7$, $70 \div 10 = 7$. So **$y = 7x$** .
- b. $7 \times 15 = \mathbf{105}$.
- c. $7x = 161$, so $x = 161 \div 7 = \mathbf{23}$.

Scoring: 1 point for each part.

Question 4 Conveyor belt graph (3 points)

- a. Each minute adds 7 boxes: **$b = 7m$** .
- b. In 3 minutes the belt moves **21 boxes**.
- c. $7 \times 12 = \mathbf{84 \text{ boxes}}$.

Scoring: 1 point for each part.

Question 5 Car wash fundraiser (3 points)

- a. Independent: **number of cars n** . Dependent: **revenue r** .
- b. **$r = 8.5n$**
- c. $8.5 \times 26 = 221$, so **\$221**.

Scoring: 1 point for each part.

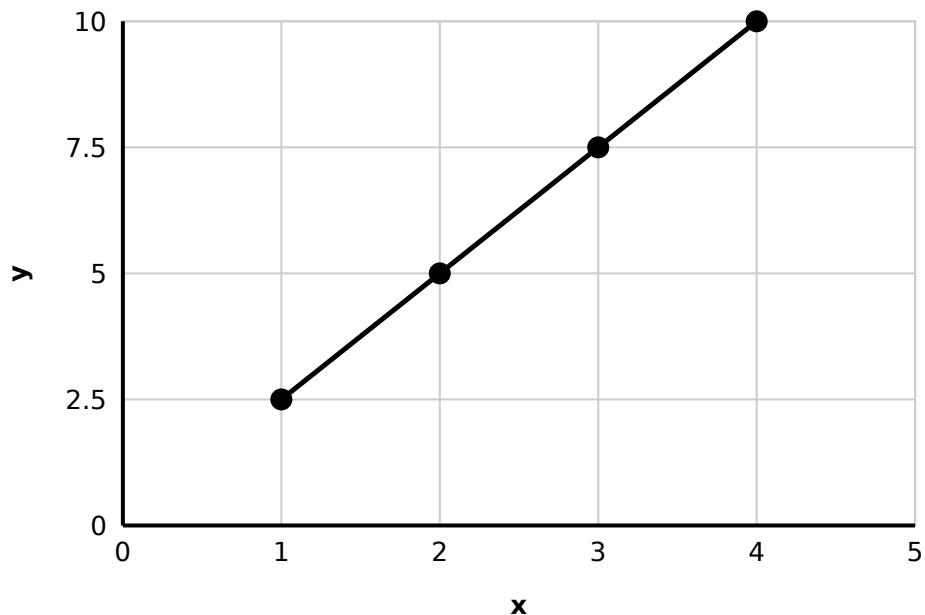
Question 6 An age difference (2 points)

- a. **$e = n + 8$**
- b. $31 + 8 = \mathbf{39 \text{ years old}}$.

Scoring: 1 point for each part.

Question 7 Graph the pairs (2 points)

The points lie on a line through the origin. Each y is 2.5 times x .



Answer for Question 7.

$y = 2.5x$

Scoring: 1 point for plotting all four points correctly; 1 point for the equation.

Question 8 Kayak rental (3 points)

- a. $k = 15h$. For 2.5 hours: $15 \times 2.5 = \mathbf{\$37.50}$.
- b. $15h = 105$, so $h = \mathbf{7 \text{ hours}}$.
- c. $12 \times 7 = 84$ and $105 - 84 = \mathbf{\$21 \text{ less}}$.

Scoring: 1 point for each part.