

Writing and Using $y = kx$ Equations

Grade 7 math · Test Answer Key · Standards: 7.RP.A.2c

Use the scoring notes under each solution. Give partial credit when the constant is correct but the equation is written backwards, and when a final value is right but the unit is missing.

Standards: 7.RP.A.2c · **Level:** Grade 7

Question 1 Equation from a Table (2 points)

$34 \div 4 = 8.5$, $85 \div 10 = 8.5$, $127.5 \div 15 = 8.5$.

$y = 8.5x$

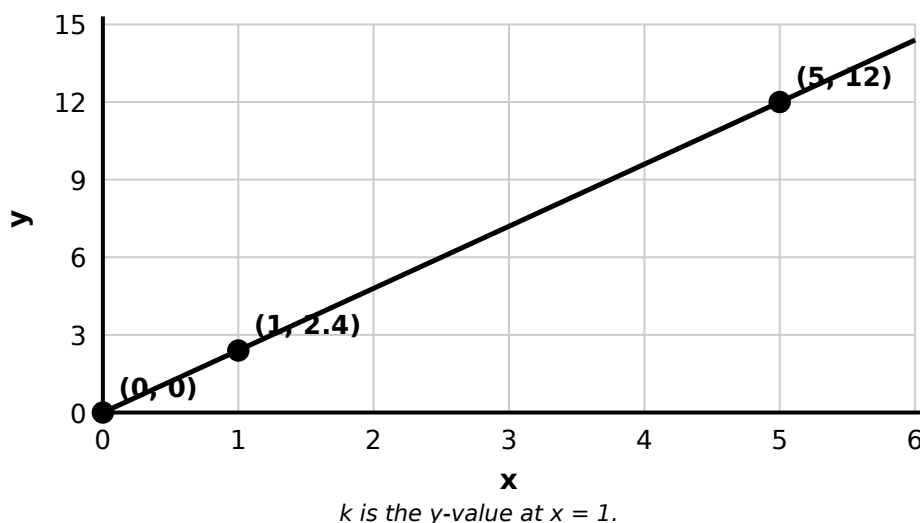
Scoring: 1 point for finding k , 1 point for the equation.

Question 2 Equation from a Graph (3 points)

(a) $12 \div 5 = 2.4$.

(b) $y = 2.4x$.

(c) $2.4 \times 14 = 33.6$.



$k = 2.4$; $y = 2.4x$; $y = 33.6$

Scoring: 1 point per part.

Question 3 Smoothie Bar (2 points)

$$t = 5.25n.$$

$$5.25 \times 13 = 68.25.$$

$$t = 5.25n; \$68.25$$

Scoring: 1 point for the equation, 1 point for the cost.

Question 4 Leaking Tank (3 points)

(a) $k = \frac{3}{5} \div 4 = \frac{3}{20}$, so $g = \frac{3}{20}h$.

(b) $\frac{3}{20} \times 14 = \frac{42}{20} = 2 \frac{1}{10}$ gallons.

(c) $3 \div \frac{3}{20} = 20$ hours.

$$g = \frac{3}{20}h; 2 \frac{1}{10} \text{ gallons; } 20 \text{ hours}$$

Scoring: 1 point per part.

Question 5 Comparing Gym Plans (3 points)

(a) A: 9.5. B: $30 \div 3 = 10$, $50 \div 5 = 10$, $80 \div 8 = 10$.

(b) Gym A is cheaper per visit.

(c) 20 visits: A costs 190, B costs 200, so B costs \$10 more.

\$9.50 and \$10; Gym A; \$10 more

Scoring: 1 point per part.

Question 6 Proportional Equations (2 points)

(a) $y = 9x$ has $k = 9$. (c) $y = x \div 9$ has $k = \frac{1}{9}$. (b) and (d) are not of the form $y = kx$.

(a) and (c)

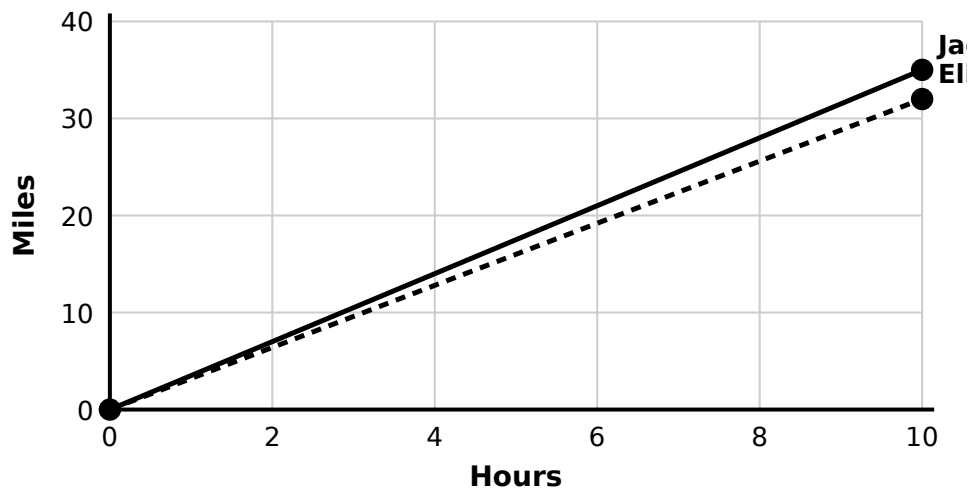
Scoring: 1 point for both correct choices, 1 point for the values of k (0.5 each).

Question 7 Graph Versus Equation (3 points)

(a) $14 \div 4 = 3.5$, so $d = 3.5t$.

(b) $3.5 > 3.2$, so Jada is faster.

(c) $3.5 \times 10 = 35$ and $3.2 \times 10 = 32$, so Jada is 3 miles ahead.



At 10 hours Jada is 3 miles ahead.

$d = 3.5t$; Jada; 3 miles

Scoring: 1 point per part.

Question 8 County Sales Tax (2 points)

$$t = 0.065p.$$

$$84 \times 0.065 = 5.46.$$

$$9.75 \div 0.065 = 150.$$

$t = 0.065p$; \$5.46; \$150

Scoring: 1 point for the equation, 0.5 point for each value.