

Grade 8 · Systems of Linear Equations · Test Answer Key

Common Core 8.EE.C.8a, 8.EE.C.8b, 8.EE.C.8c · mathovore.fr

Use this key to score the test out of 20 points. Each solution shows complete work, and the scoring note explains how partial credit is given. Accept any correct method, such as substitution where elimination is shown, as long as the work is clear and the final ordered pair is right.

Grade 8 Common Core: 8.EE.C.8a · 8.EE.C.8b · 8.EE.C.8c

Question 1: Check an ordered pair (2 points)

$2(3) + (-1) = 5$ is true, but $3 - (-1) = 4$ is not equal to 5.

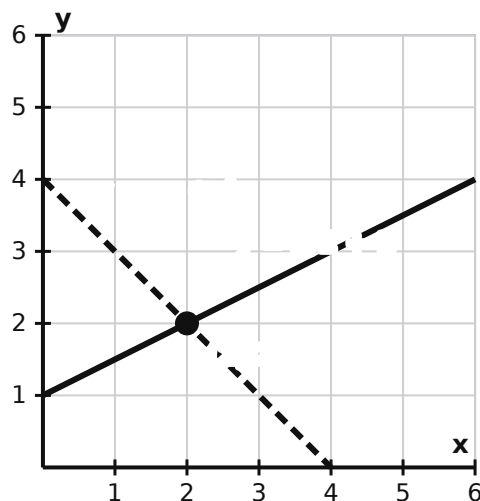
No, it is not a solution.

Scoring: 1 point for checking each equation correctly; the conclusion must match.

Question 2: Read a graph (3 points)

- a. The lines cross at $(2, 2)$.
- b. $\frac{1}{2}(2) + 1 = 2$ and $-2 + 4 = 2$. Both equations are true.

Scoring: 1 point for the point; 1 point for each equation checked.



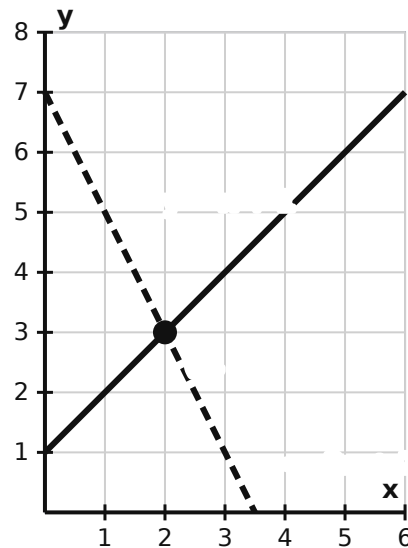
The intersection point is $(2, 2)$.

Question 3: Solve by graphing (2 points)

The line $y = x + 1$ passes through $(0,1)$ and $(2,3)$. The line $y = -2x + 7$ passes through $(1,5)$ and $(2,3)$.

The solution is $(2,3)$.

Scoring: 1 point for both lines graphed correctly; 1 point for the solution.



The lines meet at $(2,3)$.

Question 4: Substitution (2 points)

Substitute: $2x + 4x - 5 = 7$, so $6x = 12$ and $x = 2$. Then $y = 4(2) - 5 = 3$.

Solution: $(2,3)$.

Scoring: 1 point for $x = 2$; 1 point for $y = 3$.

Question 5: Elimination (2 points)

Subtract the second equation from the first: $6y = 18$, so $y = 3$. Then $3x - 6 = 0$ gives $x = 2$.

Solution: $(2,3)$. Check: $3(2) + 4(3) = 18$.

Scoring: 1 point for eliminating a variable correctly; 1 point for the final pair.

Question 6: Multiply both equations (3 points)

Multiply the first by 2 and the second by 3: $6x + 4y = 16$ and $6x + 15y = -6$.

Subtract: $-11y = 22$, so $y = -2$.

Then $3x + 2(-2) = 8$ gives $3x = 12$ and $x = 4$.

Solution: $(4, -2)$. Check: $2(4) + 5(-2) = -2$.

Scoring: 1 point for scaling the equations; 1 point for $y = -2$; 1 point for $x = 4$.

Question 7: How many solutions? (2 points)

- a. The first equation gives $y = 2x - 4$. Same slope 2, different intercepts: **no solution**.
- b. Dividing the first by 2 gives $2x + y = 3$, so $y = -2x + 3$. Same line: **infinitely many solutions**.

Scoring: 1 point per part for the correct count with a valid reason.

Question 8: School store (2 points)

Let n be notebooks and p pens: $3n + 4p = 11.50$ and $3n + 2p = 9.50$.

Subtract: $2p = 2$, so $p = 1$. Then $3n + 2 = 9.50$ gives $n = 2.50$.

A notebook costs **\$2.50** and a pen costs **\$1.00**.

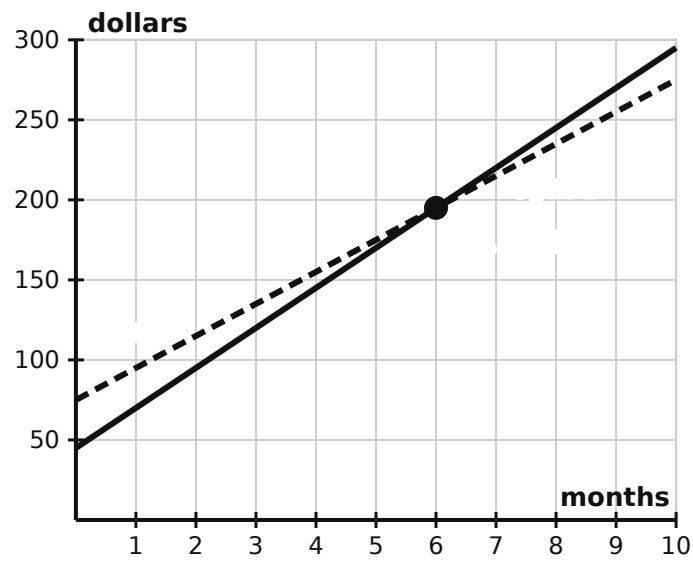
Scoring: 1 point for a correct system; 1 point for both prices.

Question 9: Gym memberships (2 points)

$45 + 25m = 75 + 20m$ gives $5m = 30$, so $m = 6$. Cost: $45 + 25(6) = 195$ and $75 + 20(6) = 195$.

The gyms cost the same after **6 months, \$195**.

Scoring: 1 point for the equation; 1 point for months and cost.



The lines cross at (6,195).

Total

20 points