

Systems of Linear Equations: math test solutions, Grade 8 – download the PDF

Test solutions with the detailed point scale. Add up your points and spot what to review.

Suggested time: 45 minutes. Out of 20 points. Calculator allowed only when the problem says so.

1 Checking pairs

/ 3 pts

- a. $4 - 1 = 3$ and $8 + 3 = 11$: yes. (1 pt)
- b. $2 + 2 = 4$ but $6 - 1 = 5 \neq 4$: no. (1 pt)
- c. $-(-2) + 1 = 3 = y$ and $2(-2) + 7 = 3 = y$: yes. (1 pt)

2 Graphing

/ 4 pts

Line 1 passes through $(0, -1)$ and $(3, 2)$ (slope 1). (1 pt) Line 2 passes through $(0, 5)$ and $(2, 1)$ (slope -2). (1 pt) They cross at $(2, 1)$. (1 pt) Check: $2 - 1 = 1$ and $-2(2) + 5 = 1$. (1 pt)

3 Substitution

/ 3 pts

$3x + 2x - 5 = 10$, so $5x = 15$ and $x = 3$. (2 pts) Then $y = 2(3) - 5 = 1$. Solution $(3, 1)$. (1 pt)

4 Elimination

/ 4 pts

a. Adding: $4x = 16$, $x = 4$; then $y = 3$. Solution $(4, 3)$. (2 pts)

b. Multiply by 3 and 5: $9x + 15y = 3$ and $10x - 15y = 35$. Adding: $19x = 38$, $x = 2$; then $6 + 5y = 1$, $y = -1$. Solution $(2, -1)$. (2 pts)

5 Number of solutions

/ 3 pts

a. Same slope, different intercepts: parallel, **none**. (1 pt)

b. The second equation is 3 times the first: same line, **infinitely many**. (1 pt)

c. Slopes 1 and -1 differ: **one** solution, $(3, 4)$. (1 pt)

6 Lemonade stand

/ 3 pts

Equations: $s + l = 45$ and $s + 2l = 70$. (1 pt) Subtracting: $l = 25$, so $s = 20$. (1 pt) Check: $20 + 50 = 70$. The stand sold 20 small and 25 large cups. (1 pt)



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