

Solving 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 Warm-up: one and two steps

/ 4 pts

- a. $2x = 16$, so $x = 8$. (1 pt)
- b. $-3y = -15$, so $y = 5$. (1 pt)
- c. $\frac{m}{5} = -3$, so $m = -15$. (1 pt)
- d. $7 = 2p - 6 + 1 = 2p - 5$, so $2p = 12$ and $p = 6$. (1 pt)

2 Variables on both sides

/ 4 pts

- a. $4x + 1 = 17$, so $4x = 16$ and $x = 4$. Check: $25 = 25$. (2 pts)
- b. $10n - 5 = 9n + 6$, so $n = 11$. Check: $5 \cdot 21 = 105$ and $3 \cdot 35 = 105$. (2 pts)

3 Fractions and decimals

/ 3 pts

a. Multiply by 6: $4x - 3 = x + 6$ (1 pt), so $3x = 9$ and $x = 3$ (1 pt).

b. $0.5x = 2.5$, so $x = 5$. (1 pt)

4 How many solutions?

/ 3 pts

a. Right side: $5x - 5 + 3 = 5x - 2$. The statement $5x - 2 = 5x - 2$ is always true: infinitely many solutions. (1 pt)

b. $6x + 3 = 6x + 5$ gives $3 = 5$, false: no solution. (1 pt)

c. $2x = -8$, so $x = -4$: exactly one solution. (1 pt)

5 Print shop

/ 3 pts

With p pages: $6 + 0.20p = 0.35p$ (1 pt).

$6 = 0.15p$, so $p = 40$ (1 pt).

The cost is $0.35 \cdot 40 = 14$ dollars. For **40 pages** both shops charge **\$14**. (1 pt)

6 Consecutive even integers

/ 3 pts

Let the integers be $n, n + 2, n + 4$: $3n + 6 = 90$ (1 pt).

$3n = 84$, so $n = 28$ (1 pt).

The integers are **28, 30, and 32**, and $28 + 30 + 32 = 90$. (1 pt)



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