

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

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

## 1 Checking pairs

/ 3 pts

Decide whether each ordered pair is a solution of the given system.

- a.  $(4, -1)$  for  $x + y = 3$  and  $2x - 3y = 11$
- b.  $(2, 1)$  for  $x + 2y = 4$  and  $3x - y = 4$
- c.  $(-2, 3)$  for  $y = -x + 1$  and  $y = 2x + 7$

## 2 Graphing

/ 4 pts

On graph paper, draw the lines  $y = x - 1$  and  $y = -2x + 5$  and give the solution of the system. Check it by calculation.

## 3 Substitution

/ 3 pts

Solve by substitution:  $y = 2x - 5$  and  $3x + y = 10$ .

#### 4 Elimination

/ 4 pts

Solve by elimination.

- a.  $2x + y = 11$  and  $2x - y = 5$
- b.  $3x + 5y = 1$  and  $2x - 3y = 7$

#### 5 Number of solutions

/ 3 pts

Say whether each system has one solution, none, or infinitely many. Justify.

- a.  $y = 5x - 2$  and  $y = 5x + 4$
- b.  $x - 2y = 6$  and  $3x - 6y = 18$
- c.  $y = x + 1$  and  $y = -x + 7$

#### 6 Lemonade stand

/ 3 pts

A stand sold 45 cups of lemonade, small cups at 1 dollar and large cups at 2 dollars, for 70 dollars in total. How many small and how many large cups were sold?



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