

Solving Systems of Linear Equations Three Ways

Grade 9 – Algebra 1 math · Test · Standards: A-REI.C.5, A-REI.C.6, A-REI.D.11, A-CED.A.3

Name: _____ Date: _____ Class: _____

This test has 8 questions worth 20 points in total. Show the method you use, write each solution as an ordered pair and check it where asked. A calculator is allowed. Plan on about 45 minutes.

Standards: A-REI.C.5, A-REI.C.6, A-REI.D.11, A-CED.A.3 · **Level:** Grade 9 Algebra 1

Time: 45 minutes · 8 questions · Total: 20 points · Calculator: as allowed by your teacher

Question 1 Is it a solution? (2 points)

Is $(4, -3)$ a solution of the system $2x + y = 5$ and $x - 3y = 13$? Show your check.

Question 2 Substitution (2 points)

Solve by substitution: $y = 3x - 2$ and $4x + y = 12$.

Question 3 Elimination (2 points)

Solve by elimination: $5x + 4y = 7$ and $3x - 4y = 17$.

Question 4 Elimination with scaling (3 points)

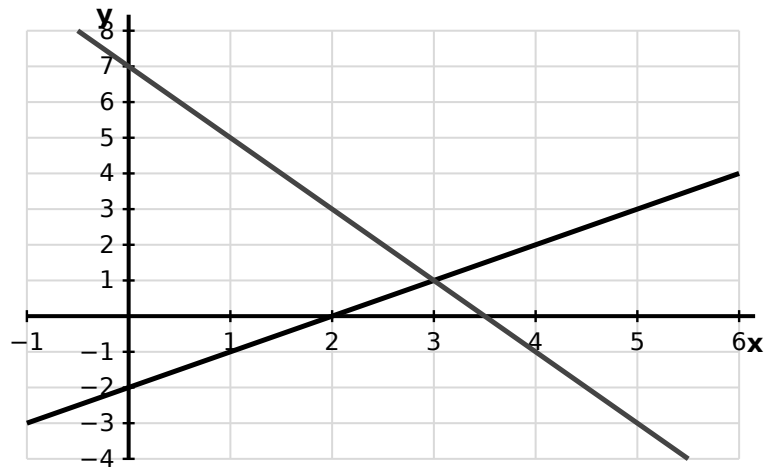
Solve: $2x + 3y = 19$ and $5x - 4y = 13$.

Question 5 Number of solutions (2 points)

State how many solutions each system has and justify. (a) $y = -3x + 6$ and $6x + 2y = 12$ (1 point) (b) $y = 4x + 2$ and $y = 4x - 7$ (1 point)

Question 6 Solution from a graph (3 points)

A graph of two functions appears below.



Line A: $y = x - 2$. Line B: $y = -2x + 7$.

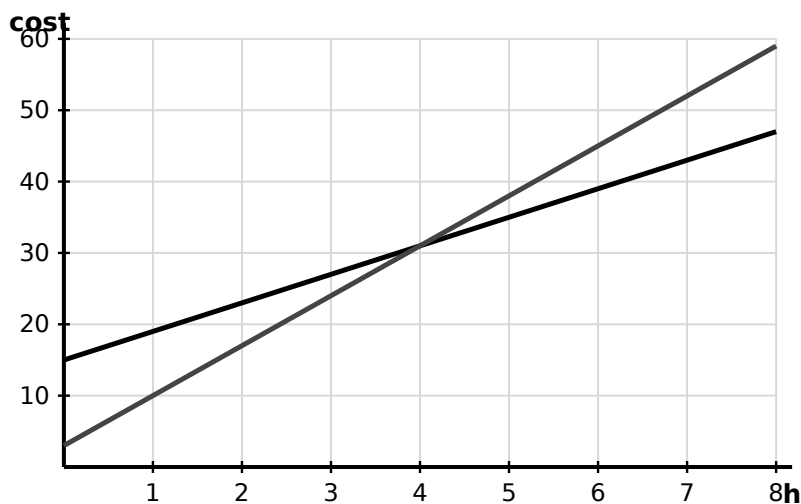
- (a) Name the point where the graphs meet. (1 point) (b) Verify it in both equations. (1 point) (c) For which input do the two functions have equal outputs, and what is that output? (1 point)

Question 7 Concession stand (3 points)

At a concession stand, 3 hot dogs and 2 sodas cost \$15.00, and 2 hot dogs and 3 sodas cost \$13.75. (a) Write a system of equations. (1 point) (b) Find the price of a hot dog and of a soda. (1 point) (c) Find the cost of one hot dog and one soda. (1 point)

Question 8 Comparing plans (3 points)

Cost lines for two kayak rental plans are graphed below.



Plan A: $C = 15 + 4h$. Plan B: $C = 3 + 7h$.

- (a) Write one equation that is true when the two plans cost the same. (1 point) (b) Solve it. (1 point) (c) Which plan is cheaper for 6 hours? (1 point)