Simultaneous Equations Homework – Homework: Simultaneous Equations*

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Abstract

Some homework problems on simultaneous equations.

Exercise 1

Years after their famous race, the tortoise and the hare agree on a re-match. As they begin the race, the tortoise plods along at $2\frac{1}{2}$ mph, slow but confident. The hare zips out at $8\frac{1}{2}$ mph, determined not to repeat his original mistake... and he doesn't! The hare never slows down, and reaches the finish line 45 minutes (that is, $\frac{3}{4}$ of an hour) before the tortoise.

a. Did they run the same amount of time as each other?
b. Did hey run the same distance?
c. Clearly define and label the two variables in this problem. Note that your answers to (a) and (b) will have a lot to do with how you do this?
d. Based on your variables, write the equation $d = rt$ for the tortoise.
e. Based on your variables, write the equation $d = rt$ for the hare.
f. Now answer the question: **how long did the tortoise run?**

Exercise 2

$$6x + 2y = 6$$
$$x - y = 5$$

a. Solve by substitution.
b. Check your answers.

Exercise 3

$$3x + 2y = 26$$
$$2x - 4y = 4$$

a. Solve by substitution.
b. Check your answers.

Exercise 4

$$2y - x = 4$$
$$2x + 20y = 4$$

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a. Solve by substitution.
b. Check your answers.

Exercise 5

$$\begin{aligned} 7x - 3 &= y \\ 14x &= 2y + 6 \end{aligned}$$

a. Solve by substitution.
b. Check your answers.

Exercise 6

$$\begin{aligned} 3x + 4y &= 12 \\ 5x - 3y &= 20 \end{aligned}$$

a. Solve any way you like.
b. Check your answers.

Exercise 7

$$\begin{aligned} \mathrm{ax} + y &= 6 \\ 2x + y &= 4 \end{aligned}$$

a. Solve any way you like. You are solving for x and y; a is just a constant. (So your final answer will say " x=**blah-blah**, y=**blah-blah**." The **blah-blah** will both have a in them.)
b. Check your answers.