

Review: Applications of Linear Systems

For each problem: define the variables, write the system, solve & check.

- 1) To attend a Wiggles concert, it will cost \$5 per child & \$9 per adult. If 12 people attend the concert at a cost of \$68, how many children & adults attend?
- 2) The sum of 2 numbers is 2. The sum of 3 times the first number & 2 times the second is 1. Find the numbers.
- 3) You exercised on a treadmill for 1.5 hours. You ran at 4 mph & then you sprinted at 6 mph. If the digital monitor says that you ran & sprinted 7 miles, how long did you run at each speed?

Answers:

1) let c = # of children attending & a = # of adults attending

$$\left. \begin{array}{l} c + a = 12 \\ 5c + 9a = 68 \end{array} \right\} c = 10 \text{ children, } a = 2 \text{ adults}$$

2) let x = one number & y = 2nd number

$$\left. \begin{array}{l} x + y = 2 \\ 3x + 2y = 1 \end{array} \right\} x = -3, y = 5$$

3) let r = time spent running & s = time spent sprinting

$$\left. \begin{array}{l} r + s = 1.5 \\ 4r + 6s = 7 \end{array} \right\} r = 1 \text{ hour running, } s = \frac{1}{2} \text{ hour sprinting}$$