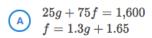# Systems of linear equations word problems

The owner of a landscaping company is developing a proposal to maintain the grounds of a building. It is estimated that 75 gardening hours and 25 foreman hours will be required. The total budget for these hours is $\$1,600$. The hourly wage for a foreman is 30% more than a gardener plus an additional $\$1.65$ per hour. Which of the following systems of equations can be used to determine the hourly wages of a gardener, g, and a foreman, f, so the total wages are $\$1,600$?

(A)
$$25g + 75f = 1{,}600$$
$$f = 1.3g + 1.65$$

(B)
$$25f + 75g = 1{,}600$$
$$f = 1.3g + 1.65$$

(C)
$$25g + 75f = 1{,}600$$
$$g = 1.3f + 1.65$$

(D)
$$25f + 75g = 1{,}600$$
$$g = 1.3f + 1.65$$

Devin is a landscaper who needs to prepare different types of grass seed for his customers' yards. Bluegrass seed costs $\$2.00$ per pound while drought-resistant seed costs $\$3.00$ per pound. If for a particular day the two types of grass seed totaled $\$68.00$ and together weighed 25 pounds, how many pounds of bluegrass seed did Devin prepare?

(A) 4

(B) 7

(C) 18

(D) 21

Ricardo has two types of assignments for his class. The number of mini assignments, m, he has is 1 fewer than twice the number of long assignments, l, he has. If he has 46 assignments in total, which of the following systems of equations can be used to correctly solve for m and l?

(A)
$$m = 2l - 1$$
$$m + l = 46$$

(B)
$$m = 2l - 1$$
$$m = l + 46$$

(C)
$$l = 2m - 1$$
$$m + l = 46$$

(D)
$$l = 2m - 1$$
$$m = l + 46$$

Systems of linear equations word problems

One Saturday, a butcher sells a total of b pounds of beef at $\$6.00$ per pound. She also sells some pork for $\$7.00$. On Sunday, she sells b pounds of beef again, but at the sale price of $\$4.00$ per pound. She also sells some pork for $\$9.00$. Given that she made the same revenue of d dollars each day, which of the following systems of equations can be used to find out how many pounds of beef, b, she sold each day?

(A)
$$d = 4b + 7$$
$$d = 6b + 9$$

(B)
$$d = 6b + 7$$
$$d = 4b + 9$$

(C)
$$b = 4d + 7$$
$$b = 6d + 9$$

(D)
$$b = 6d + 7$$
$$b = 4d + 9$$

A piece of glass with an initial temperature of $99°C$ is cooled at a rate of $3.5°C$ per minute. Concurrently, a piece of copper with an initial temperature of $0°C$ is heated at $2.5°C$ per minute. Which of the following systems of equations can be used to solve for the temperature, T, in degrees Celsius, and the time, m, in minutes, when the glass and copper reach the same temperatures?

(A)
$$T = 99 + 3.5m$$
$$T = 2.5m$$

(B)
$$T = 99 - 3.5m$$
$$T = 2.5m$$

(C)
$$T = 99 + 2.5m$$
$$T = 3.5m$$

(D)
$$T = 99 - 2.5m$$
$$T = 3.5m$$