

To repair body damage on a car, AutoBody charges \$125, plus \$18 per hour. CarCare charges \$200, plus \$12 per hour. Determine the number of hours for which the two body shops will cost the same.

$x = \# \text{ of hours}$

$$\begin{array}{r} 125 + 18x = 200 + 12x \\ -12x \qquad \qquad -12x \\ \hline 125 + 6x = 200 \end{array}$$

$$\begin{array}{r} 125 + 6x = 200 \\ -125 \qquad \qquad -125 \\ \hline 6x = 75 \end{array}$$

$$\begin{array}{r} x = 12.5 \\ \text{hrs} \end{array} \quad \begin{array}{r} 6x = 75 \\ \hline 6 \quad 6 \end{array}$$

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Sandy and Suzanne are planting flower pots around the school building. Sandy has planted 33 pots and is planting at the rate of 10 pots per hour. Suzanne has planted 25 pots and is planting at the rate of 14 pots per hour. In how many hours will they have planted the same number of flower pots?

$x = \# \text{ of hrs.}$

$$\begin{array}{r} 33 + 10x = 25 + 14x \\ -10x \qquad \qquad -10x \\ \hline 33 = 25 + 4x \end{array}$$

$$\begin{array}{r} 33 = 25 + 4x \\ -25 \qquad -25 \\ \hline 8 = 4x \end{array}$$

$$\begin{array}{r} x = 2 \text{ hr.} \\ \frac{8}{4} = \frac{4x}{4} \end{array}$$

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Louisa used Downtown Taxi, which charges \$2 for the first mile and \$1.10 for each additional mile. Pietro used Uptown Cab, which charges \$5 for the first mile and \$0.95 for each additional mile. They paid the same amount and traveled the same distance. How far did they travel?

$x = \# \text{ of mi}$

$$\begin{array}{r} 2 + 1.10x = 5 + .95x \\ \qquad \qquad .95x \qquad - .95x \\ \hline 2 + .15x = 5 \end{array}$$

$$\begin{array}{r} 2 + .15x = 5 \\ -2 \qquad \qquad -2 \\ \hline .15x = 3 \\ \hline .15 \quad .15 \end{array} \quad \begin{array}{r} x = 20 \\ \text{mi} \end{array}$$

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The length of the sides of a square measure  $2x - 5$ . The length of a rectangle measures  $2x$ , and the width measures  $x + 2$ . For what value of  $x$  is the perimeter of the square the same as the perimeter of the rectangle?

$x = \text{perimeter}$

$$4(2x - 5) \quad \square$$

$$8x - 20 = 2(2x) + 2(x + 2)$$

$$8x - 20 = 4x + 2x + 4$$

$$\begin{array}{r} 8x - 20 = 6x + 4 \\ -6x \qquad \qquad -6x \\ \hline 2x - 20 = 4 \end{array}$$

$$\begin{array}{r} 2x - 20 = 4 \\ +20 \quad +20 \\ \hline 2x = 24 \end{array}$$

$$\begin{array}{r} 2x = 24 \\ \hline 2 \quad 2 \\ \hline x = 12 \end{array}$$

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