

Word Problems - Answers

1a) $5a + 3t = 65$
 $(2a + 1t = 25) \cdot 3$

elimination

b) $5a + 3t = 65$
 $-6a - 3t = -75$

$2a + t = 25$
 $2(10) + t = 25$
 $20 + t = 25$
 $t = 5$

$\frac{-1a}{-1} = \frac{-10}{-1}$

$a = 10$

An admission ticket is \$10 and a train ticket is \$5

2a. $3r + 5s = 25$
 $(5r + 1s = 27) \cdot 5$

elimination

b) $3r + 5s = 25$
 $-25r - 5s = -135$

$5r + 1s = 27$
 $5(5) + 1s = 27$
 $25 + 1s = 27$
 $1s = 2$

$\frac{-22r}{-22} = \frac{-110}{-22}$

$r = 5$

a roller coaster ticket is \$5 and a super swing ticket is \$2.

3a) $r + h = 14$
 $25r + 50h = 450$

$h = 14 - r$

substitution

b) $25r + 50(14 - r) = 450$
 $25r + 700 - 50r = 450$
 $\frac{-25r}{-25} = \frac{-250}{-25}$
 $r = 10$

$h = 14 - r = 14 - 10$
 $h = 4$

That afternoon, 10 pairs of running shoes were sold and 4 pairs of hiking boots.

$$4a) \begin{cases} S + L = 9 \\ 50S + 75L = 500 \end{cases} \quad L = 9 - S \quad \text{(substitution)}$$

$$b) \begin{aligned} 50S + 75(9 - S) &= 500 \\ 50S + 675 - 75S &= 500 \\ -25S &= -175 \\ \underline{-25} \quad \underline{-25} & \\ S &= 7 \end{aligned}$$

$$\begin{aligned} L &= 9 - S \\ L &= 9 - 7 = 2 \end{aligned}$$

There was 7 small dogs and 2 large dogs groomed that afternoon.

$$5. \begin{cases} L + S = 1650 \\ 1.5L + 0.04S = 1818 \end{cases}$$

(elimination)

$$\begin{aligned} -1.5L - 1.5S &= -2475 \\ + 1.5L + 0.04S &= 1818 \\ \hline -1.46S &= -657 \\ \underline{-1.46} \quad \underline{-1.46} & \\ S &= 450 \end{aligned}$$

There are 450 small trees and 1200 large trees in the forest.

$$\begin{aligned} L + S &= 1650 \\ L + 450 &= 1650 \\ L &= 1200 \end{aligned}$$