

1.12 Applied Word Problems

Procedure for solving word problems

1. Read the statement of the problem. (then reread slowly)
2. Clearly identify the unknown quantities and assign a variable to represent one of the unknowns.
3. State the other unknown in terms of step 2.
4. ** If possible make a sketch.
5. Analyze the statement, then write an equation. (this is the most difficult part)
6. Solve the equation.
7. check the solution.

$$(X)$$
$$(X + 5000)$$

example problems:

from pg 45-46 # 5

$$\begin{array}{l} \text{Car\#1} \rightarrow X = 22,000 \\ \text{Car\#2} \rightarrow (X + 5000) = 27,000 \end{array}$$

$$X + (X + 5000) = 49,000$$

$$X + X + 5000 = 49,000$$

$$\begin{array}{r} 2X + 5000 = 49,000 \\ - 5000 \quad - 5000 \end{array}$$

$$\begin{array}{r} 2X = 44,000 \\ \hline 2 \\ X = 22,000 \end{array}$$

$$\begin{array}{l} 1^{\text{st}} \text{ year} - X = 1.9 \text{ mill} \quad \#7 \\ 2^{\text{ND}} \text{ year} - X + 700,000 = 2.6 \text{ mill} \end{array}$$

$$X + (X + 700,000) = 4,500,000$$

$$\begin{array}{r} 2X + 700,000 = 4,500,000 \\ -700,000 \quad -700,000 \\ \hline \end{array}$$

$$\frac{2X}{2} = \frac{3,800,000}{2}$$

$$X = 1,900,000$$

#12

$$\text{gear 1} = X = 22$$

$$\text{gear 2} = X + 13 = 35$$

$$\text{gear 3} = X + 13 + 15 = 50$$

$$\underline{X} + \underline{X} + \textcircled{13} + \underline{X} + \textcircled{13} + \textcircled{15} = 107$$

$$\begin{array}{r} 3X + 41 \\ - 41 \\ \hline \end{array} = \begin{array}{r} 107 \\ - 41 \\ \hline \end{array}$$

$$\frac{3X}{3} = \frac{66}{3}$$

$$X = 22$$

#19

$$A = X * 48$$

(1190 Adults)

$$= (2002 - X) * 30$$

812 children

$$48X + 30(2002 - X) = 81,480$$

$$48X + 60,060 - 30X = 81,480$$

$$18X + 60,060 = 81,480$$

$$-60,060 \quad -60,060$$

$$\frac{18X}{18} = \frac{21,420}{18}$$

$$X = 1190$$

#21

down $(24 - X)$ ^{16 min} $150(24 - X)$
 900m

UP $X = 18 \text{ min}$ $\rightarrow 50X$
 900m

$$150(24 - X) = 50X$$

$$3600 - 150X = 50X$$

$$+150X \quad +150X$$

$$\frac{3600}{200} = \frac{200X}{200}$$

$$18 = X$$

of REVIEW
#2 Quiz

$$\sqrt{25-16} = \sqrt{9} = 3$$

$$\sqrt{25} - \sqrt{16} = 5 - 4 = 1$$

$$\sqrt{25 \cdot 16} = 5 \cdot 4 = 20$$

$$\sqrt{25} \cdot \sqrt{16}$$

#2 of review
quiz

$$\sqrt{9+36} = \sqrt{45}$$

$$\sqrt{9 \cdot 5}$$

$$\sqrt{9} \cdot \sqrt{5}$$

$$3\sqrt{5}$$

Review
of Quiz
#2

$$2\sqrt{72}$$

$$2\sqrt{2 \cdot 36}$$

$$2\sqrt{2} \sqrt{36}$$

$$2\sqrt{36} \sqrt{2}$$

$$2 \cdot 6 \sqrt{2}$$

$$= 12\sqrt{2}$$

Review
Quiz
#2

$$xy - 1y - 5y - 4xy$$

$$-3xy - 6y$$