

Word Problem Test

Algebra Review Solutions

①

1st side	$3 + \Delta$	= 10 cm
2nd side	Δ	= 7 cm
3rd side	2Δ	= 14 cm

$$3 + \Delta + \Delta + 2\Delta = 31$$

$$\begin{array}{r} 3 + 4\Delta = 31 \\ -3 \quad -3 \quad -3 \\ \hline 4\Delta = 28 \end{array}$$

$$\frac{4\Delta}{4} = \frac{28}{4}$$

$$\Delta = 7$$

②

coin	value	Qty
dimes	$\times 10¢$	$24 - h$
half-dollars	$\times 50¢$	h

$$10(24 - h) + 50h = 360$$

$$\begin{array}{r} 240 - 10h + 50h = 360 \\ -240 \quad -240 \\ \hline 40h = 120 \end{array}$$

$$\frac{40h}{40} = \frac{120}{40}$$

$$h = 3$$

3 half-dollars
21 dimes

③

ticket	value	Qty
adult	1.75	a
student	1.25	$2a$

$$1.75a + 1.25(2a) = 850.00$$

$$175a + 250a = 85000$$

$$\begin{array}{r} 425a = 85000 \\ 425 \quad +9 \quad 425 \end{array}$$

$$a = 200$$

200 adult tickets
400 student tickets

④ 1st int: x
 2nd int: $x+1$
 3rd int: $x+2$
 4th int: $x+3$

$$x + 2(x+3) = 114$$

$$x + 2x + 6 = 114$$

$$3x + 6 = 114$$

$$\begin{array}{r} -6 \quad -6 \\ \hline 3x = 108 \\ \hline 3 \quad 3 \\ \hline x = 36 \end{array}$$

36, 37, 38, 39

⑤ Mark

now	4 yrs ago
$j+8$	$j+8-4$
j	$j-4$

 Jessica

$$j+4 + j-4 = 16$$

$$2j = 16$$

$$j = 8$$

**Jessica is 8 yrs old
 Mark is 16 yrs old**

⑥ 1st #: f
 2nd #: $6f$
 $f + 6f = 84$
 $\frac{7f}{7} = \frac{84}{7}$
 $f = 12$

**1st # is 12
 2nd # is 72**

⑦ Monday: M
 Wednesday: $M-3$
 Friday: $2(M-3)$
 $M + M-3 + 2(M-3) = 21$
 $2M - 3 + 2M - 6 = 21$
 $4M - 9 = 21$

$$\begin{array}{r} +9 \quad +9 \\ \hline 4M = 30 \\ \hline 4 \quad 4 \\ \hline M = 7.5 \end{array}$$

She ran 9 miles on Friday.

$$7x + 2x + 8 = -91$$

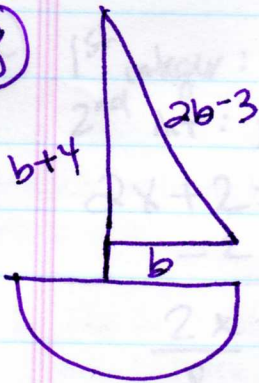
$$9x + 8 = -91$$

$$\begin{array}{r} -8 \quad -8 \\ \hline 9x = -99 \\ \hline 9 \quad 9 \\ \hline x = -11 \end{array}$$

-11, -9, -7

**The original width is 12 cm.
 The original length is 36 cm.**

8



$$P = 57 \text{ ft}$$

$$\text{side a: } 2b - 3$$

$$\text{side b: } b$$

$$\text{side c: } b + 4$$

$$2b - 3 + b + b + 4 = 57$$

$$4b + 1 = 57$$

$$\begin{array}{r} -1 \quad -1 \\ \hline \end{array}$$

$$\frac{4b}{4} = \frac{56}{4}$$

$$b = 14$$

Side a = 25 ft
side b = 14 ft
side c = 18 ft

9

$$1^{\text{st}} \text{ int: } x$$

$$2^{\text{nd}} \text{ int: } x + 2$$

$$3^{\text{rd}} \text{ int: } x + 4$$

$$7(x) + 2(x + 4) = -91$$

$$7x + 2x + 8 = -91$$

$$9x + 8 = -91$$

$$\begin{array}{r} -8 \quad -8 \\ \hline \end{array}$$

$$\frac{9x}{9} = \frac{-99}{9}$$

$$x = -11$$

-11, -9, -7

10

$$\text{apple: } b - 24$$

$$\text{banana: } b$$

$$7b = 10(b - 24)$$

$$7b = 10b - 240$$

$$\begin{array}{r} -10b \quad -10b \\ \hline \end{array}$$

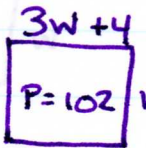
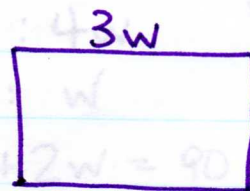
$$-3b = -240$$

$$\begin{array}{r} -3 \quad -3 \\ \hline \end{array}$$

$$b = 80$$

A banana has 80 calories

11



$$\text{length: } 3w$$

$$\text{width: } w$$

$$3w + 4$$

$$w - 1$$

$$2(3w + 4) + 2(w - 1) = 102$$

$$6w + 8 + 2w - 2 = 102$$

$$8w + 6 = 102$$

$$\begin{array}{r} -6 \quad -6 \\ \hline \end{array}$$

$$\frac{8w}{8} = \frac{96}{8}$$

$$w = 12$$

The original width is 12 cm.
The original length is 36 cm.

(12) 1st integer: x
 2nd int: $x+2$

$$\begin{array}{r} 2x + 2 = 94 \\ -2 \quad -2 \\ \hline \end{array}$$

$$\frac{2x}{2} = \frac{92}{2}$$

$$x = 46$$

$$\boxed{46 + 48}$$

(13) Mickey: $3g - 16$
 Minnie: g

$$\begin{array}{r} 4g - 16 = 228 \\ +16 \quad +16 \\ \hline \end{array}$$

$$\frac{4g}{4} = \frac{244}{4}$$

$$g = 61$$

$$\boxed{\begin{array}{l} \text{Mickey's score} = 167 \\ \text{Minnie's score} = 61 \end{array}}$$

(14) printer: $50 + c - 300 = c - 250$
 computer: c
 monitor: $c - 300$

$$c - 250 + c + c - 300 = 1775$$

$$3c - 550 = 1775$$

$$\begin{array}{r} +550 \quad +550 \\ \hline \end{array}$$

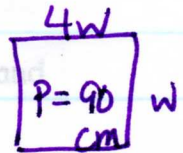
$$\frac{3c}{3} = \frac{2325}{3}$$

$$c = 775$$

$$\begin{array}{r} -250 \\ \hline 525 \end{array}$$

$$\boxed{\text{The printer costs } \$525.}$$

(15) length: $4w$
 width: w



$$8w + 2w = 90$$

$$\frac{10w}{10} = \frac{90}{10}$$

$$w = 9$$

$$\boxed{\text{The length is } 36 \text{ cm, and the width is } 9 \text{ cm.}}$$