

Getting Ready for Algebra II - Problem Solve Day 2

① Let $x =$ smaller #
 $2x+1 =$ larger #

$$3(2x+1) = 5x + 10$$

$$x = 7$$

Ans: 7, 15

ck: $3(15) = 45$

$5(7) = 35 + 10 = 45$ ✓

② Let $x = 1^{st}$ #

$x+2 = 2^{nd}$ #

$2x = 3^{rd}$ #

$$x + 2x = (x+2) + 2$$

Ans: 2, 4, 4

ck: $2 + 4 = 6$

$4 + 2 = 6$ ✓

③ Let $x = 1^{st}$ con. int.

$x+1 = 2^{nd}$ " "

$x+2 = 3^{rd}$ " "

$$2x = (x+2) + 12$$

$x = 14$

Ans: 14, 15, 16

ck: $2(14) = 28$

$16 + 12 = 28$ ✓

④ Let $x = 1^{st}$ con. odd #

$x+2 = 2^{nd}$ " " "

$x+4 = 3^{rd}$ " " "

$$x + x + 2 = 3(x+4) - 27$$

$x = 17$

Ans: 17, 19, 21

ck: $17 + 19 = 36$, $3(21) - 27 = 36$ ✓

⑤ Let $f =$ # 5¢ stamps

$f + 50 =$ # 2¢ "

$2f - 10 =$ # 4¢ "

$$.05f + .02(f+50) + .04(2f-10) = 4.35$$

$$f = 25$$

Ans: $\left\{ \begin{array}{l} 25 \text{ Five } \& \text{ stamps} \\ 75 \text{ Two } \& \text{ " } \\ 40 \text{ Four } \& \text{ " } \end{array} \right.$

ck: $1.25 + 1.50 + 1.60 = 4.35$ ✓

⑥ Let $q =$ # quarters

$20 - q =$ # dimes

$$.25q + .10(20 - q) = 3.20$$

$$q = 8$$

Ans: 8 quarters
 12 dimes.

ck: $8q = 2.00$
 $12d = 1.20$
 $\underline{\hspace{1cm}}$
 3.20 ✓

⑦ Let $x =$ # pds of 45¢ candy

$(20 - x) =$ # " " 70¢ "

$$.45x + .7(20 - x) = .55(20)$$

$$x = 72$$

Ans: 72 pounds @ 45¢
 48 " " 70¢

ck:

$72(.45) = 32.4$
 $48(.70) = 33.6$
 $\underline{\hspace{1cm}}$
 66
 $.55(20) = 11.0$ ✓

⑧ Let $x =$ # gallons @ 36¢

$(300 - x) =$ " " @ 52¢

$$.36x + .52(300 - x) = 300(.40)$$

$$x = 225$$

Ans: 225 gal @ 36¢ → \$81
 75 gal @ 52¢ → +39

$\underline{\hspace{1cm}}$
 $\$120$ ✓
 $.40(300) = \$120$ ✓

①⑦ Let $R =$ rate of Train 1
 $R+20 =$ " " Train 2

$$5R + 5(R+20) = 500$$
$$R = 40$$

Ans: Train 1 40 mph
Train 2 60 mph

ck: Train 1 $40(5) = 200$ miles
Train 2 $60(5) = 300$

500 miles ✓

①⑧ let $x =$ rate of fast car
 $\frac{1}{2}x + 13 =$ " " slow "

$$6x + 6\left(\frac{1}{2}x + 13\right) = 420$$
$$x = 38$$

Ans: 38 mph (fast car)
32 mph (slow car)

ck: $38(6) = 228$
 $32(6) = 192$

420 ✓

①⑨ let $x =$ rate of slow car
 $x+6 =$ rate of fast car
 $3.5x + 3.5(x+6) = 287$
 $x = 38$

Ans: 38 mph slow car
44 mph fast car

ck: $3\frac{1}{2}(38) = 133$ miles
 $3\frac{1}{2}(44) = 154$

287 miles ✓