

HW 12

$$\begin{array}{r}
 1. \quad x + y = 12 \\
 + \quad x - y = 4 \\
 \hline
 2x = 16 \\
 x = 8 \\
 8 + y = 12 \\
 y = 4
 \end{array}$$

$$\boxed{8 \text{ \& } 4}$$

$$\begin{array}{l}
 2. \quad x \rightarrow \text{senior} \\
 \quad \quad y \rightarrow \text{child}
 \end{array}$$

$$\begin{array}{r}
 (3x + y = 38) \cdot -2 \\
 3x + 2y = 52 \\
 \hline
 -6x - 2y = -76 \\
 3x + 2y = 52 \\
 \hline
 -3x = -24 \\
 x = 8 \\
 3(8) + y = 38 \\
 y = 14
 \end{array}$$

$$\begin{array}{l}
 \boxed{\text{senior tickets } \$8} \\
 \boxed{\text{child tickets } \$14}
 \end{array}$$

$$\begin{array}{l}
 3. \quad x \rightarrow \text{van} \\
 \quad \quad y \rightarrow \text{bus}
 \end{array}$$

$$\begin{array}{r}
 8x + 8y = 240 \\
 (4x + y = 54) \cdot -2
 \end{array}$$

$$\begin{array}{r}
 8x + 8y = 240 \\
 -8x - 2y = -108 \\
 \hline
 6y = 132 \\
 y = 22 \\
 4x + 22 = 54 \\
 4x = 32 \\
 x = 8
 \end{array}$$

$$\begin{array}{l}
 \boxed{\text{buses hold } 22} \\
 \boxed{\text{vans hold } 8}
 \end{array}$$

$$\begin{array}{l}
 4. \quad x \rightarrow \text{small} \\
 \quad \quad y \rightarrow \text{large}
 \end{array}$$

$$\begin{array}{r}
 (3x + 14y = 203) \cdot -11 \\
 (11x + 11y = 220) \cdot 3
 \end{array}$$

$$\begin{array}{r}
 -33x - 154y = -2233 \\
 33x + 33y = 660 \\
 \hline
 -121y = -1573 \\
 y = 13 \\
 3x + 14(13) = 203 \\
 3x + 182 = 203 \\
 3x = 21 \\
 x = 7
 \end{array}$$

$$\begin{array}{l}
 \boxed{\text{small box is } \$7} \\
 \boxed{\text{large box is } \$13}
 \end{array}$$

$$\begin{array}{l}
 5. \quad x \rightarrow \text{green} \\
 \quad \quad y \rightarrow \text{blue} \\
 x + y = 52 \\
 y = x + 16 \\
 x + x + 16 = 52 \\
 2x = 36 \\
 x = 18 \\
 y = 18 + 16 \\
 y = 34
 \end{array}$$

$$\begin{array}{l}
 \boxed{18 \text{ green eyed dolls}} \\
 \boxed{34 \text{ blue eyed dolls}}
 \end{array}$$

6. $x \rightarrow \$10$
 $y \rightarrow \$20$

4, \$10 bills
3, \$20 bills

$$x + y = 7 \rightarrow y = 7 - x$$

$$10x + 20y = 100$$

$$10x + 20(7 - x) = 100$$

$$10x + 140 - 20x = 100$$

$$-10x = -40$$

$$x = 4$$

$$y = 3$$

9. $x \rightarrow$ small
 $y \rightarrow$ large

$$x + y = 155 \rightarrow y = 155 - x$$

$$(1.25x + 2.50y = 265) \cdot 100$$

$$125x + 250y = 26500$$

$$125x + 250(155 - x) = 26500$$

$$125x + 38750 - 250x = 26500$$

$$-125x = -12250$$

$$x = 98$$

$$98 + y = 155$$

$$y = 57$$

98 small cups
57 large cups

7. $x \rightarrow$ paper clips
 $y \rightarrow$ index cards

$$(15x + 7y = 55.40) \cdot 10$$

$$(12x + 10y = 41.70) \cdot -7$$

$$150x + 70y = 554$$

$$\underline{-84x - 70y = -431.9}$$

$$66x = 122.1$$

$$x = 1.85$$

paper clips cost \$1.85
index cards cost \$3.95

$$15(1.85) + 7y = 55.40$$

$$27.75 + 7y = 55.40$$

$$7y = 27.65$$

$$y = 3.95$$

10. $x + y = 7$

#s add to 7 for 0-9

1, 6	16 to 61	<u>no</u>
2, 5	25 to 52	<u>no</u>
3, 4	34 to 43	<u>yes</u>

34

8. $x \rightarrow 0.30 \text{¢}$
 $y \rightarrow 0.20 \text{¢}$

$$(0.3x + 0.2y = 3.60) \cdot 10$$

$$y = x - 2$$

$$3x + 2y = 36$$

$$3x + 2(x - 2) = 36$$

$$3x + 2x - 4 = 36$$

$$5x = 40$$

$$x = 8$$

$$y = 6$$

8, 30¢ stamps
6, 20¢ stamps