

23) $a = \text{adult tickets}$
 $c = \text{children tickets}$

$$a + c = 11$$

$$22a + 15c = 228$$

$$\begin{array}{r} a + c = 11 \\ -c \quad -c \\ \hline \end{array}$$

$$a = 11 - c$$

$$22(11 - c) + 15c = 228$$

$$242 - 22c + 15c = 228$$

$$242 - 7c = 228$$

$$\begin{array}{r} -242 \quad -242 \\ \hline \end{array}$$

$$\begin{array}{r} -7c = -14 \\ \hline -7 \quad -7 \\ \hline \end{array}$$

$$c = 2$$

$$a + c = 11$$

$$a + 2 = 11$$

$$\begin{array}{r} -2 \quad -2 \\ \hline \end{array}$$

$$a = 9$$

9 adult tickets (198)

2 children tickets (30)

228

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24) $b = \text{busses}$
 $v = \text{vans}$

$$b + v = 6$$

$$51b + 10v = 142$$

$$\begin{array}{r} b + v = 6 \\ -v \quad -v \\ \hline b = 6 - v \end{array}$$

$$51(6 - v) + 10v = 142$$

$$\begin{array}{r} 306 - 51v + 10v = 142 \\ -306 \quad -306 \\ \hline -41v = -164 \\ \hline -41 \quad -41 \\ \hline v = 4 \end{array}$$

$$b + v = 6$$

$$b + 4 = 6$$

$$\begin{array}{r} -4 \quad -4 \\ \hline \end{array}$$

$$b = 2$$

2 busses (102)

4 vans (40)

142

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$$\textcircled{26} \quad y = \frac{1}{2}x + 3$$

$$2y - x = 6$$

$$2\left(\frac{1}{2}x + 3\right) - x = 6$$

$$x + 6 - x = 6$$

$$6 = 6$$

Infinite solutions

$$\textcircled{27} \quad 6y = -5x + 24$$

$$2.5x + 3y = 12$$

$$\frac{6y}{6} = \frac{-5x + 24}{6}$$

$$y = -\frac{5}{6}x + 4$$

$$2.5x + 3\left(-\frac{5}{6}x + 4\right) = 12$$

$$2.5x - \frac{5}{2}x + 12 = 12$$

$$12 = 12$$

Infinite solutions

$$\textcircled{28} \quad x = -7y + 34$$

$$x + 7y = 32$$

$$-7y + 34 + 7y = 32$$

$$34 = 32$$

No solution

$$\textcircled{29} \quad 5 = \frac{1}{2}x + 3y$$

$$10 - x = 6y$$

$$\frac{10 - x}{+x} = \frac{6y}{+x}$$

$$\frac{10}{-6y} = \frac{6y + x}{-6y}$$

$$\frac{10 - 6y}{-6y} = x$$

$$5 = \frac{1}{2}(10 - 6y) + 3y$$

$$5 = 5 - 3y + 3y$$

$$5 = 5$$

Infinite solutions

$$\textcircled{30} \quad 17 = 11y + 12x$$

$$12x + 11y = 14$$

$$\frac{17}{-11y} = \frac{11y + 12x}{-11y}$$

$$\frac{17 - 11y}{12} = \frac{12x}{12}$$

$$\frac{17}{12} - \frac{11}{12}y = x$$

$$12\left(\frac{17}{12} - \frac{11}{12}y\right) + 11y = 14$$

$$17 - 11y + 11y = 14$$

$$17 = 14$$

No solution

$$\textcircled{31} \quad 1.5x + 2y = 11$$

$$3x + 6y = 22$$

$$\frac{3x + 6y}{-6y} = \frac{22}{-6y}$$

$$\frac{3x}{3} = \frac{22 - 6y}{3}$$

$$x = \frac{22}{3} - 2y$$

$$\frac{3}{2}\left(\frac{22}{3} - 2y\right) + 2y = 11$$

$$\frac{11 - 3y + 2y}{-11} = \frac{11}{-11}$$

$$-y = 0$$

$$y = 0$$

$$3x + 6(0) = 22$$

$$\frac{3x}{3} = \frac{22}{3}$$

$$x = \frac{22}{3}$$

$\left(\frac{22}{3}, 0\right)$ one solution

$1.5 = \frac{3}{2}$