Solve by elimination:

$$-7x + 5y = 7$$
$$14x + 10y = -14$$

Solve by substitution:

$$4x + 6y = -10$$
$$x = 4 + 5y$$

Solve by elimination:

$$-7x + 5y = 7 \quad (1)$$
$$14x + 10y = -14 \quad (2)$$

(1) x 2 $\quad -14x + 10y = 14 \quad (3)$

(2) $\quad 14x + 10y = -14$

(3) + (2) $\quad 20y = 0$

$$y = 0 \quad (4)$$

Sub (4) in (1) $\quad -7x + 5(0) = 7$

$$-7x = 7$$

$$x = -1$$

$$(-1, 0)$$

Solve by substitution:

$$4x + 6y = -10$$
$$x = 4 + 5y$$

$$4(4 + 5y) + 6y = -10$$
$$16 + 20y + 6y = -10$$
$$20y + 6y = -10 - 16$$
$$26y = -26$$
$$y = -1$$

$$x = 4 + 5(-1)$$
$$x = 4 - 5$$
$$x = -1$$

(-1, -1)

Wilbur and Mary are selling flower bulbs for a school fundraiser. Customers can buy packages of tulip bulbs and bags of daffodil bulbs. Wilbur sold 6 packages of tulip bulbs and 6 bags of daffodil bulbs for a total of $114. Mary sold 12 packages of tulip bulbs and 2 bags of daffodil bulbs for a total of $78. Find the cost of a package of tulip bulbs and a bag of daffodil bulbs.

tulips = t $4.00
daffodils = d $15.00

$6t + 6d = 114$ ①
~~$12t + 2d = 78$~~ ②

② x -3 $-36t - 6d = -234$ ③

$6t + 6d = 114$ ①

③ + ① $-30t = -120$
$-30 \quad -30$
$t = 4$

Sub in ①
$6t + 6d = 114$
$6(4) + 6d = 114$
$24 + 6d = 114$ -24
$\frac{6d}{6} = \frac{90}{6}$
$d = 15$

Roberto has 16 coins in his pocket consisting of loonies and toonies. How many of each does he have if the total amount of money he has is $27.

Total = 16
Value = $27
loonies = l
toonies = t

Total l + t = 16 ①
Value −1 l + 2t = −27 ②

① + ② Add the opp.

−l + t = −11
= l = l

t = 11
l = 5

Roberto has 16 coins in his pocket consisting of loonies and toonies. How many of each does he have if the total amount of money he has is $27.

$$L + T = 16 \quad (1)$$

$$1L + 2T = 27 \quad (2)$$

$$-1T = -11 \quad (1) - (2)$$

$$T = 11 \quad (3)$$

Sub (3) in (1)

$$L + 11 = 16$$

$$L = 5$$

Roberto has 5 loonies and 11 toonies.

George has a beautiful farm where he raises Emus and Buffalo. On his farm there are 64 legs and 20 heads. How many of each does he have?

EXAM QUESTION

# of Emus = E
# of Buffalos = B
Total # = 20
Value = 64

$E + B = 20$ ①
$2E + 4B = 64$ ②

① x -2 $-2E - 2B = -40$ ③
$2E + 4B = 64$ ①

③ + ① $2B = 24$

$\frac{2B}{2} = \frac{24}{2}$

$B = 12$
$E = 8$