

SIMULTANEOUS LINEAR EQUATIONS

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$$1) \quad 2x + y = 8 \quad (1)$$

$$5x + 3y = 22 \quad (2)$$

$$(1) \times 3 \quad 6x + 3y = 24 \quad (3)$$

$$(3) - (2) \quad \underline{x = 2}$$

Substitute for x in (1)

$$2(2) + y = 8$$

$$4 + y = 8$$

$$y = 8 - 4$$

$$\underline{y = 4}$$

$$2) \quad 7x - 2y = 3 \quad (1)$$

$$2x - 5y = -8 \quad (2)$$

$$(1) \times 5 \quad 35x - 10y = 15 \quad (3)$$

$$(2) \times 2 \quad 4x - 10y = -16 \quad (4)$$

$$(3) - (4) \quad 31x = 31$$

$$x = \frac{31}{31}$$

$$\underline{x = 1}$$

Substitute for x in (1)

$$7(1) - 2y = 3$$

$$7 - 2y = 3$$

$$-2y = 3 - 7$$

$$-2y = -4$$

$$y = \frac{-4}{-2}$$

$$\underline{y = 2}$$

$$3) \quad 5x - 3y = -28 \quad (1)$$

$$7x + 3y = 4 \quad (2)$$

$$(1) + (2) \quad 12x = -24$$

$$x = \frac{-24}{12}$$

$$\underline{x = -2}$$

Substitute for x in (2)

$$7(-2) + 3y = 4$$

$$-14 + 3y = 4$$

$$+ 3y = 4 + 14$$

$$3y = 18$$

$$y = \frac{18}{3}$$

$$\underline{y = 6}$$