

14th February

Corbettmaths

The 2 x 2 matrix I is the identity matrix.

Write down the 2 x 2 matrix I

$$\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$$

Use Pascal's Triangle to work out the coefficient of x^2 in the expansion of $(2 - 3x)^5$

$$\begin{array}{cccccc} & & & & & 1 \\ & & & & & & 1 \\ & & & & 1 & & 1 \\ & & & 1 & 2 & 1 & \\ & & 1 & 3 & 3 & 1 & \\ & 1 & 4 & 6 & 4 & 1 & \\ 1 & 5 & 10 & 10 & 5 & 1 & \end{array}$$

$$10 \times 2^3 \times (-3x)^2$$

$$10 \times 8 \times 9x^2$$

$$720x^2$$

$$\underline{\underline{720}}$$

Solve the simultaneous equations

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

$$6x + 3y + z = 25 \quad - (2)$$

$$4x - 3y - 2z = 1 \quad - (3)$$

$$(1) + (2)$$

$$8x + 4y = 28 \quad - (5)$$

$$2 \times (2) \quad 12x + 6y + 2z = 50 \quad - (4)$$

$$(4) + (3) \quad 16x + 3y = 51 \quad - (6)$$

$$2 \times (5) \quad 16x + 8y = 56 \quad - (7)$$

$$(7) - (6) \Rightarrow 5y = 5$$

$$\boxed{y = 1}$$

$$\text{sub } y=1 \text{ into } (5)$$

$$8x + 4 = 28$$

$$\boxed{x = 3}$$

$$\text{sub } x=3 \text{ \& } y=1 \text{ into } (1)$$

$$6 + 1 - z = 3$$

$$\boxed{z = 4}$$