


| 30th August | |
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| Find where the matrix $\begin{pmatrix} 3 & -4 \\ -5 & 2 \end{pmatrix}$ maps the point $(2, -6)$ |  Corbettmaths $\begin{pmatrix} 3 & -4 \\ -5 & 2 \end{pmatrix} \begin{pmatrix} 2 \\ -6 \end{pmatrix} = \begin{pmatrix} 30 \\ -22 \end{pmatrix}$ $(2, -6) \rightarrow \underline{(30, -22)}$ |
| Solve $3x^2 + 12x - 2 = 0$ using completing the square | $x^2 + 4x = \frac{2}{3}$ $(x+2)^2 - 4 = \frac{2}{3}$ $(x+2)^2 = \frac{14}{3}$ $x = -2 \pm \sqrt{\frac{14}{3}}$ $\underline{(0.16, -4.16)}$ |
| A circle C has centre P The points A $(-1, 7)$ and B $(7, 7)$ lie on the diameter of C. Write down the equation of the circle. | $P(3, 7)$ $r = AP = 4$ $\underline{(x-3)^2 + (y-7)^2 = 16}$ |
| Show that $(3x + 1)$ is a factor of $3x^3 + 22x^2 + 10x + 1 = f(x)$ | $f\left(-\frac{1}{3}\right) = -\frac{1}{9} + \frac{22}{9} - \frac{10}{3} + 1 = 0$ $\Rightarrow \underline{3x+1 \text{ factor}}$ |
| Write $3x^3 + 22x^2 + 10x + 1$ in the form $(3x + 1)(x^2 + px + q)$ | $\underline{= (3x+1)(x^2 + 7x + 1)}$ |