

200 Exam Questions & Answers

141 Show that $(x - 4)$ is a factor of $x^3 - 5x^2 + 2x + 8$. Hence, fully factorise and solve $x^3 - 5x^2 + 2x + 8 = 0$.	
142 Solve $6 - x - x^2 < 0$	
143 Before a forest fire was brought under control, the spread of the fire was described by a law of the form $A = A_0 e^{kt}$ where A_0 is the area covered by the fire when it was first detected and A is the area covered by the fire t hours later. If it takes 1.5 hours for the area of the forest fire to double, find the value of the constant k .	
144 Solve $2 \sin(2x - 60)^\circ = 1$ for $0 \leq x \leq 360$.	
145 Using $75^\circ = 45^\circ + 30^\circ$, show that $\sin 75^\circ = \frac{\sqrt{6} + \sqrt{2}}{4}$.	
146 If $y = 3x^{-2} + 2x^{\frac{3}{2}}$, $x > 0$, determine $\frac{dy}{dx}$.	
147 The parabola with equation $y = x^2 - 14x + 53$ has a tangent at the point $P(8, 5)$. Find the equation of this tangent.	
148 Find $\int \frac{(x^2-2)(x^2+2)}{x^2} dx$, $x \neq 0$	
149 The curve $y = f(x)$ is such that $\frac{dy}{dx} = 4x - 6x^2$. The curve passes through the point $(-1, 9)$. Express y in terms of x .	
150 Express $3\cos x^\circ + 4\sin x^\circ$ in the form $k\cos(x - a)^\circ$ Hence, solve $3\cos x^\circ + 4\sin x^\circ = 5$	