MERIT QUESTIONS ON A TYPICAL NCEA PAPER. (B) ALGEBRA You need to get these right for Merit level

Question ONE	
(a) Calculate x if $log_4 18 = x$	(b) Solve for $x = 3^x = 2^{x+1}$
Question TWO	
(a) Solve $(3^x)^2 - 7 \times 3^x - 18 = 0$	(b) Solve
	$x^2 - 9 = 5$
	$\overline{x-3}$
Question THREE	(b) The equation $x^2 + 2bx + (b+2) = 0.bx$
(a) Find p if the equation $r^{2} + (3n + 2)r + (5n + 6) = 0$ only has one	(b) The equation $x + 2kx + (k+2) = 0$ has no real solutions. Find the possible k values
$x^{2} + (3p + 2)x + (3p + 6) = 0$ only has one root	no real solutions. Fina the possible k values.
<u>CALCULUS</u> You need to get these right for Merit level	
Question ONE	
(a) The velocity of a ball kicked vertically	(b) Find the x and y values of the maximum
up is $v = 20 - 10t$. If the ball was kicked from an initial height of 1 matrix find the	and minimum points on the curve $y = x^3 - 12x^2 + 27x + 2$
grow an initial neight of 1 metre, find the equation for its height at t sec.	y = x - 12x + 2/x + 2. (state the nature of the turning points)
	(state the nature of the tarning points)
Question 1 wO	(b) For what values of x is the europe
(a) Find the equation of the tangent to the curve $y = x^2 + 3x$ at the point where $x = -1$	(b) For what values of x is the curve $y = 6r^2 - r^3 a$ decreasing function?
$\int du v dy = x + 3x du du du point where x = -1$	y = 0x x a accreasing function.
Question THREE	(h) Find the equation of a sum of it
(a) A model rocket starts off at ground level with an initial velocity of 1 m/s and with an	(D) Find the equation of a curve if its aradiant is $y' = y^2 + y$ and it passes through
acceleration of $dv = 12t$.	f f f f f f f f f f
$\frac{dt}{dt}$	
Find the equation for the height of the	
rocket at t secs.	