Quadratic functions – 2020 O Level Additional Math

1. Nov/2020/Paper_12/No.1

The curve $y = 2x^2 + k + 4$ intersects the straight line $y = (k+4)x$ at two distinct points. Find the possible values of k. [4]

2. Nov/2020/Paper_23/No.3

Find the values of k for which the equation $x^2 + (k+9)x + 9 = 0$ has two distinct real roots. [4]

3. June/2020/Paper_11/No.8a

(a) Show that $\frac{3}{2x-3}+\frac{3}{2x+3}$ can be written as $\frac{12x}{4x^2-9}$. [2]

4. June/2020/Paper_21/No.2

(a) Write $9x^2 - 12x + 5$ in the form $p(x-q)^2 + r$, where p, q and r are constants. [3]

(b) Hence write down the coordinates of the minimum point of the curve $y = 9x^2 - 12x + 5$. [1]

5. June/2020/Paper_21/No.6

Find the values of k for which the line $y = kx - 7$ and the curve $y = 3x^2 + 8x + 5$ do not intersect. [6]

6. June/2020/Paper_22/No.3

Find the values of k for which the line $y = x - 3$ intersects the curve $y = k^2x^2 + 5kx + 1$ at two distinct points. [6]