1. March/2022/Paper_9709/12/No.5(a)

   (a) Express $2x^2 - 8x + 14$ in the form $2[(x-a)^2 + b]$. [2]

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The functions f and g are defined by

$$f(x) = x^2 \quad \text{for } x \in \mathbb{R},$$
$$g(x) = 2x^2 - 8x + 14 \quad \text{for } x \in \mathbb{R}.$$

(a) Express $x^2 - 8x + 11$ in the form $(x + p)^2 + q$ where p and q are constants. [2]

(b) Hence find the exact solutions of the equation $x^2 - 8x + 11 = 1$. [2]

Express $x^2 - 8x + 11$ in the form $(x + p)^2 + q$ where p and q are constants. [2]

3.

(a) Solve the equation $6\sqrt{y} + \dfrac{2}{\sqrt{y}} - 7 = 0$. [4]

(b) Hence solve the equation $6\sqrt{\tan x} + \dfrac{2}{\sqrt{\tan x}} - 7 = 0$ for $0° \leqslant x \leqslant 360°$. [3]