1. June/2023/Paper_9709/31/No.2

(a) Sketch the graph of $y = |2x + 3|$. [1]

(b) Solve the inequality $3x + 8 > |2x + 3|$. [3]

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2. June/2023/Paper_9709/31/No.10

The polynomial $x^3 + 5x^2 + 31x + 75$ is denoted by $p(x)$.

(a) Show that $(x + 3)$ is a factor of $p(x)$. [2]

(b) Show that $z = -1 + 2\sqrt{6}i$ is a root of $p(z) = 0$. [3]

(c) Hence find the complex numbers z which are roots of $p(z^2) = 0$. [7]

3. June/2023/Paper_9709/32/No.1

Solve the inequality $|5x - 3| < 2|3x - 7|$. [4]

4. June/2023/Paper_9709/33/No.2

Find the quotient and remainder when $2x^4 - 27$ is divided by $x^2 + x + 3$. [3]