

**AQA – Algebra functions – A2 Mathematics P1**

1. June/2021/Paper\_7357/1/No.1

State the set of values of  $x$  which satisfies the inequality

$$(x - 3)(2x + 7) > 0$$

Tick (✓) **one** box.**[1 mark]**

$$\left\{x : -\frac{7}{2} < x < 3\right\} \quad \square$$

$$\left\{x : x < -3 \text{ or } x > \frac{7}{2}\right\} \quad \square$$

$$\left\{x : x < -\frac{7}{2} \text{ or } x > 3\right\} \quad \square$$

$$\left\{x : -3 < x < \frac{7}{2}\right\} \quad \square$$

**2. June/2021/Paper\_7357/1/No.4**

Millie is attempting to use proof by contradiction to show that the result of multiplying an irrational number by a non-zero rational number is always an irrational number.

Select the assumption she should make to start her proof.

Tick (✓) **one** box.

**[1 mark]**

Every irrational multiplied by a non-zero rational is irrational.

Every irrational multiplied by a non-zero rational is rational.

There exists a non-zero rational and an irrational whose product is irrational.

There exists a non-zero rational and an irrational whose product is rational.

3. June/2021/Paper\_7357/1/No.13a, b

(a) Given that

$$P(x) = 125x^3 + 150x^2 + 55x + 6$$

use the factor theorem to prove that  $(5x + 1)$  is a factor of  $P(x)$ .

[2 marks]

(b) Factorise  $P(x)$  completely.

[3 marks]