

**Inequalities Exam Questions (From Legacy OCR MEI C1 4751 unless otherwise stated)**

**Q1 (Jun 2006, Q6)**

Solve the inequality  $x^2 + 2x < 3$ . [4]

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**Q2 (Jun 2009, Q4)**

Solve the inequality  $x(x - 6) > 0$ . [2]

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**Q3 (Jan 2010, Q2)**

Solve the inequality  $\frac{5x - 3}{2} < x + 5$ . [3]

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**Q4 (Jan 2013, Q4)**

Solve the inequality  $5x^2 - 28x - 12 \leq 0$ . [4]

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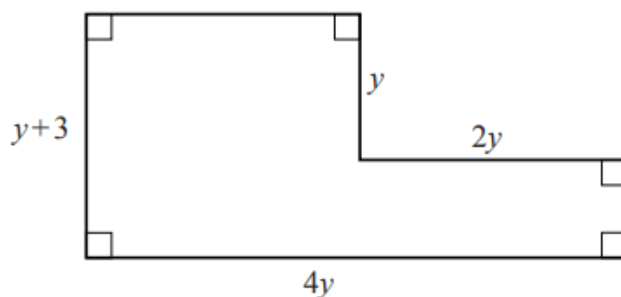
**Q5 (Jun 2014, Q6)**

Solve the inequality  $3x^2 + 10x + 3 > 0$ . [3]

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**Q6 (OCR 4721, Jun 2012, Q9)**

- (i) A rectangular tile has length  $4x$  cm and width  $(x + 3)$  cm. The area of the rectangle is less than  $112 \text{ cm}^2$ . By writing down and solving an inequality, determine the set of possible values of  $x$ . [6]
- (ii) A second rectangular tile of length  $4y$  cm and width  $(y + 3)$  cm has a rectangle of length  $2y$  cm and width  $y$  cm removed from one corner as shown in the diagram.



Given that the perimeter of this tile is between 20 cm and 54 cm, determine the set of possible values of  $y$ . [5]

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**Q7 (OCR 4721, Jun 2005, Q8)**

The length of a rectangular children's playground is 10 m more than its width. The width of the playground is  $x$  metres.

- (i) The perimeter of the playground is greater than 64 m. Write down a linear inequality in  $x$ . [1]
- (ii) The area of the playground is less than  $299 \text{ m}^2$ . Show that  $(x - 13)(x + 23) < 0$ . [2]
- (iii) By solving the inequalities in parts (i) and (ii), determine the set of possible values of  $x$ . [5]