JAN 2006

Leave blank

1. Factorise completely

$$x^3 - 4x^2 + 3x.$$

(3)

Q1

(Total 3 marks)

C1 Jan 2012

Leave blank

3. Find the set of values of x for which

(a) $4x-5>15-x$

(2)

(b) $x(x-4)>12$

(4)

JUNE 2008

2. Factorise completely

$$x^3 - 9x.$$

(3)

Leave blank

Q2

(Total 3 marks)

JUNE 2009

Leave blank

4. Find the set of values of x for which

(a) $4x - 3 > 7 - x$

(2)

(b) $2x^2 - 5x - 12 < 0$

(4)

(c) **both** $4x - 3 > 7 - x$ **and** $2x^2 - 5x - 12 < 0$

(1)

MAY 2006

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2. Find the set of values of x for which

$$x^2 - 7x - 18 > 0.$$

(4)

Q2

(Total 4 marks)

Leave blank

9. Given that $f(x) = (x^2 - 6x)(x - 2) + 3x$,

(a) express $f(x)$ in the form $x(ax^2 + bx + c)$, where a, b and c are constants.

(3)

(b) Hence factorise $f(x)$ completely.

(2)

(c) Sketch the graph of $y = f(x)$, showing the coordinates of each point at which the graph meets the axes.

(3)

C1 May 2010

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3. Find the set of values of x for which

(a) $3(x-2) < 8-2x$

(2)

(b) $(2x-7)(1+x) < 0$

(3)

(c) both $3(x-2) < 8-2x$ **and** $(2x-7)(1+x) < 0$

(1)

C1 Jan 2013

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9. The equation

$$(k + 3)x^2 + 6x + k = 5, \text{ where } k \text{ is a constant,}$$

has two distinct real solutions for x.

(a) Show that k satisfies

$$k^2 - 2k - 24 < 0$$

(4)

(b) Hence find the set of possible values of k.

(3)