Question 4 (12 marks) Use a SEPARATE writing booklet.
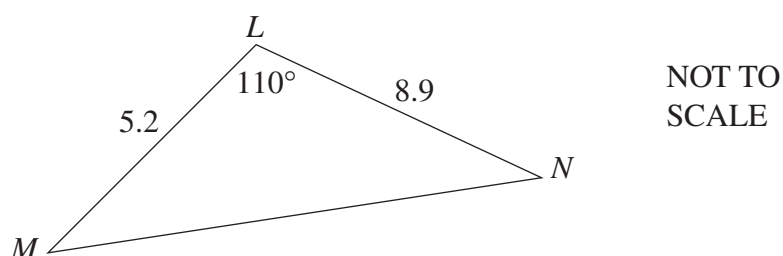
(a) Solve $|x-1| \geq 3$ and graph your solution on the number line. **2**

(b) Find all values of θ, where $0° \leq \theta \leq 360°$, that satisfy the equation **2**

$$\cos\theta - \frac{2}{5} = 0 \ .$$
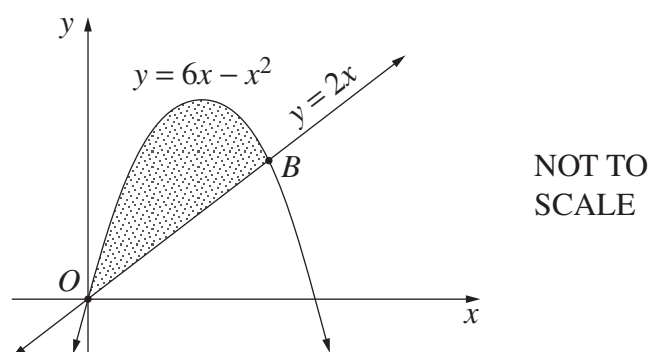
Give your answer(s) to the nearest degree.

(c)

NOT TO
SCALE

In the diagram, *LMN* is a triangle where *LM* = 5.2 metres, *LN* = 8.9 metres and angle *MLN* = 110°.

  (i) Find the length of *MN*. **2**

  (ii) Calculate the area of triangle *LMN*. **2**

(d)

NOT TO
SCALE

The graphs of $y = 2x$ and $y = 6x - x^2$ intersect at the origin and point *B*.

  (i) Show that the coordinates of *B* are (4, 8). **1**

  (ii) Find the shaded area bounded by $y = 6x - x^2$ and $y = 2x$. **3**