

## Non-Calculator

**Q1.**

- (a) Factorise  $x^2 + 5x - 24$

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Answer \_\_\_\_\_

(2)

- (b) Solve  $x^2 + 5x - 24 = 0$

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Answer \_\_\_\_\_

(1)

**(Total 3 marks)**

**Q2.**

I am thinking of two numbers.

The first number is  $x$ .

The second number is 7.5 **more** than  $x$ .

- (a) Write down an expression, in terms of  $x$ , for the second number.

Answer \_\_\_\_\_

(1)

- (b) For the two numbers,

the product is double the sum.

Work out the numbers I could be thinking of.  
Give **both** possible pairs of answers.

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\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Answer \_\_\_\_\_ and \_\_\_\_\_

or

\_\_\_\_\_ and \_\_\_\_\_

(5)

(Total 6 marks)

**Q3.**

The graph of  $y = x^2 + 2x - 3$  is drawn below.

Draw an appropriate **straight** line on the graph to work out the approximate solutions of

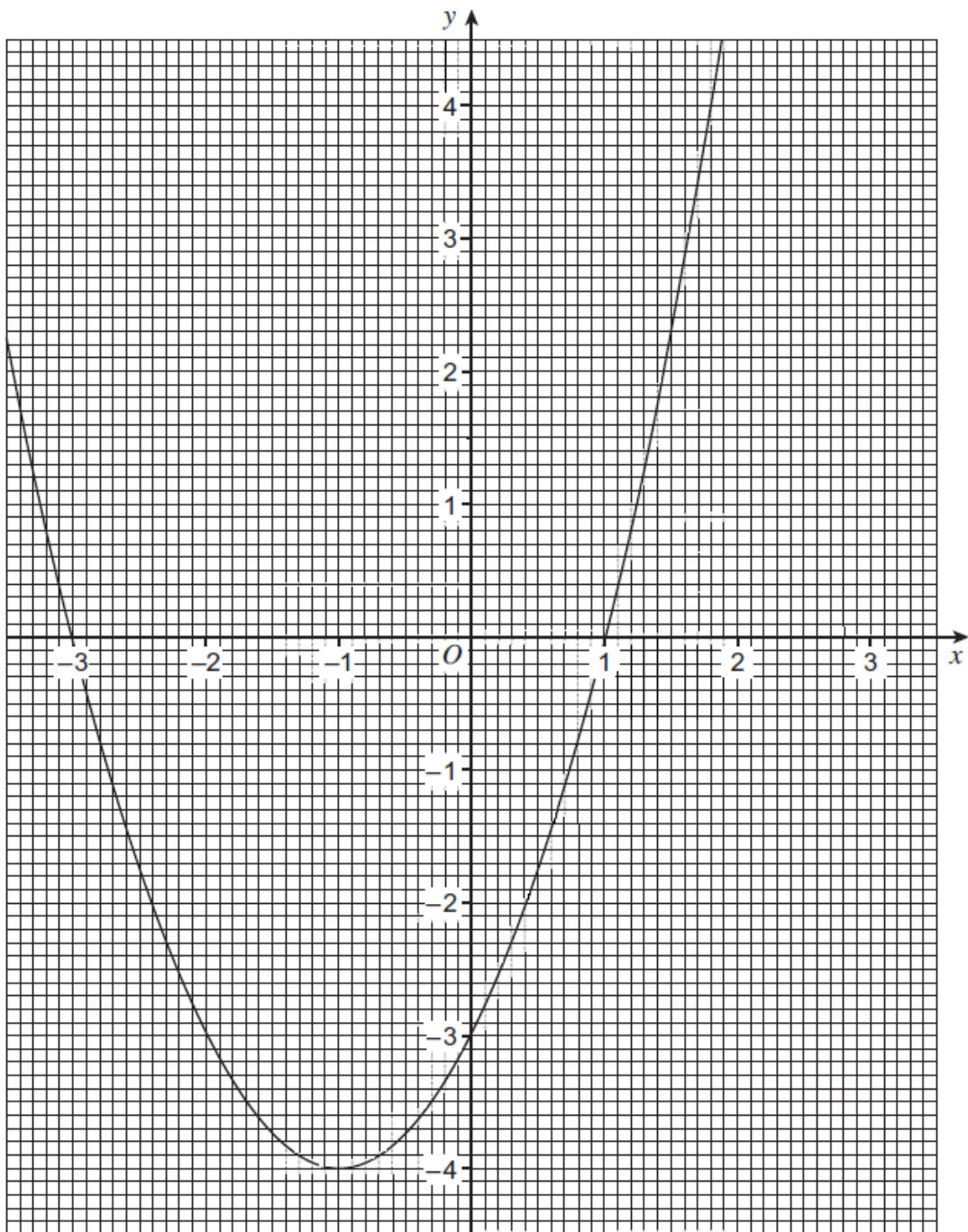
$$x^2 + x - 3 = 0$$

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Answer \_\_\_\_\_

$$y = x^2 + 2x - 3$$



(Total 3 marks)

## Calculator

**Q4.**

The expression  $\frac{x^2 - 9}{x^2 + bx - 15}$  simplifies to  $\frac{x+3}{x+5}$

Work out the value of  $b$ .

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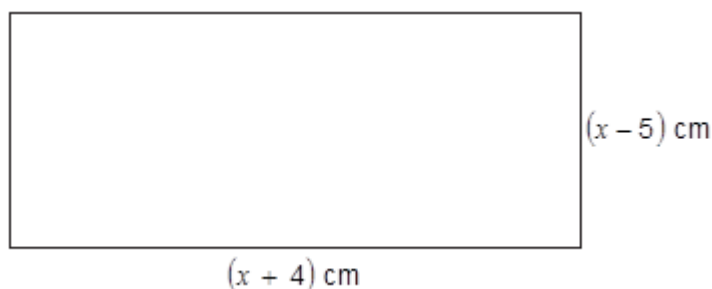
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$b =$  \_\_\_\_\_

**(Total 3 marks)**

**Q5.**

The diagram shows a rectangle.



The area of the rectangle is  $90 \text{ cm}^2$ .

Set up and solve a quadratic equation to work out the value of  $x$ .

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$x =$  \_\_\_\_\_ cm

**(Total 5 marks)**

**Q6.**

- (a) Expand and simplify  $(x + 5)(x - 4)$

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Answer \_\_\_\_\_

(2)

- (b) Solve  $(x - 8)(x + 7) = 0$

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Answer \_\_\_\_\_

(1)

(Total 3 marks)

**Q7.**

- (a) Factorise  $x^2 - 9x + 20$

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Answer \_\_\_\_\_

(2)

- (b) Solve  $x^2 - 9x + 20 = 0$

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Answer \_\_\_\_\_

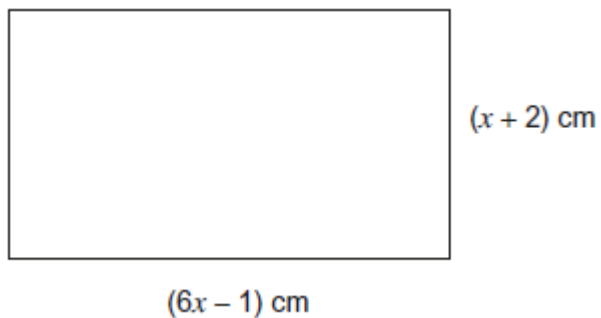
(1)

(Total 3 marks)

**Q8.**

The area of this rectangle is  $28 \text{ cm}^2$

Not drawn accurately



Work out the perimeter of the rectangle.

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Answer \_\_\_\_\_ cm  
(Total 7 marks)

**Q9.**

(a) Simplify fully  $5x^2 \times 3y^4 \times 2x \times y^3$

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Answer \_\_\_\_\_

(2)

(b) Expand and simplify  $(x + 7)(x - 3)$

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Answer \_\_\_\_\_

(2)

(c) Solve  $(x - 8)(x + 2) = 0$

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Answer \_\_\_\_\_

(1)

(d) Factorise  $8x^2y + 6xy^2$

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Answer \_\_\_\_\_

(2)

(Total 7 marks)