

- 11  $(x + 3)$  is a factor of  $3x^3 + kx^2 - 27x + 36$   
where  $k$  is a constant.

(a) Show that  $k = -4$

(2)

(b) Show that  $3x^3 - 4x^2 - 27x + 36 = 0$  can be written in the form

$$\frac{27}{x} - \frac{36}{x^2} = px + q$$

where  $p$  and  $q$  are integers, giving the value of  $p$  and the value of  $q$ .

(3)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

**Question 11 continued**

Handwriting practice area with 25 horizontal dotted lines.

**Question 11 continues on the next page**



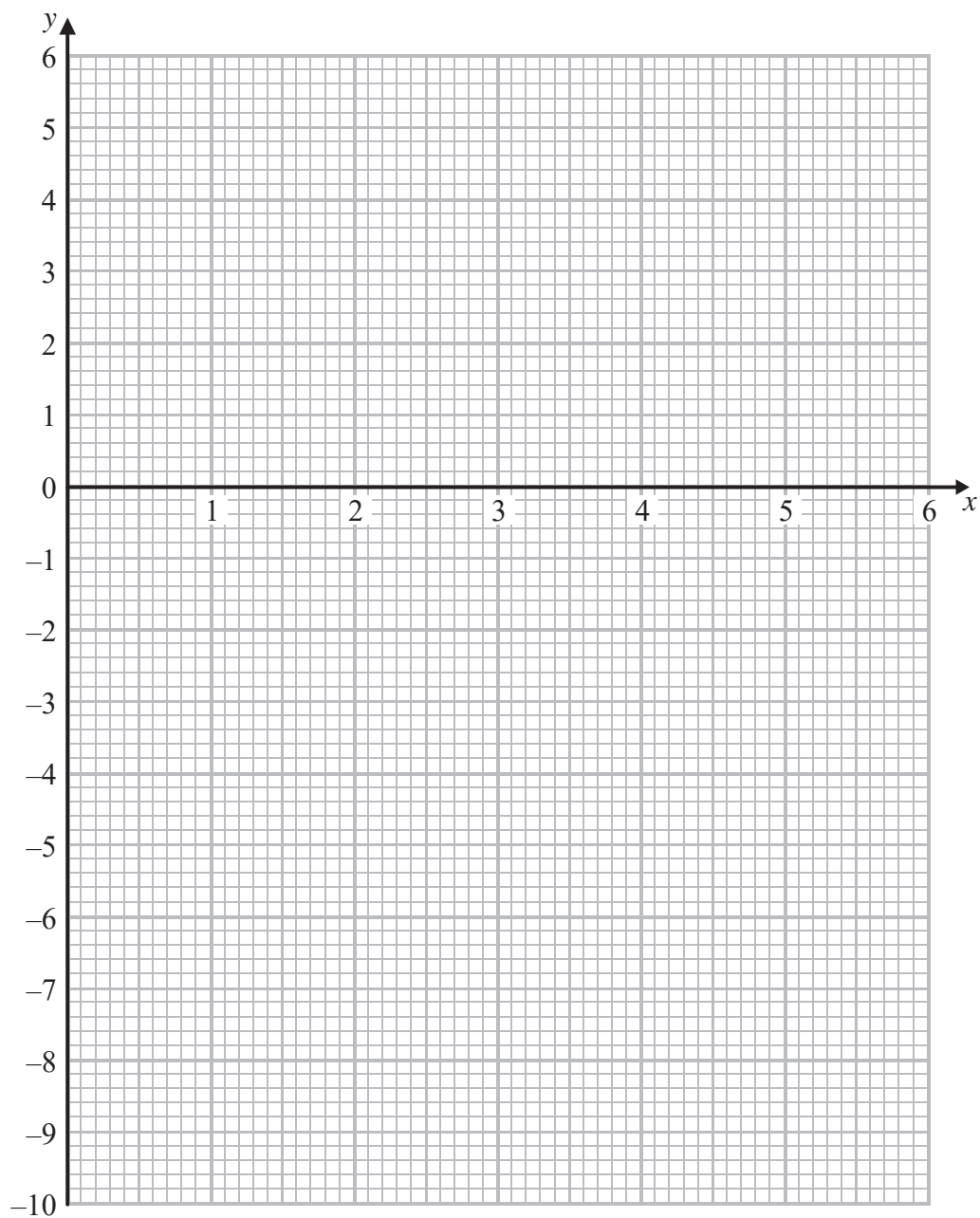


DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

### Question 11 continued



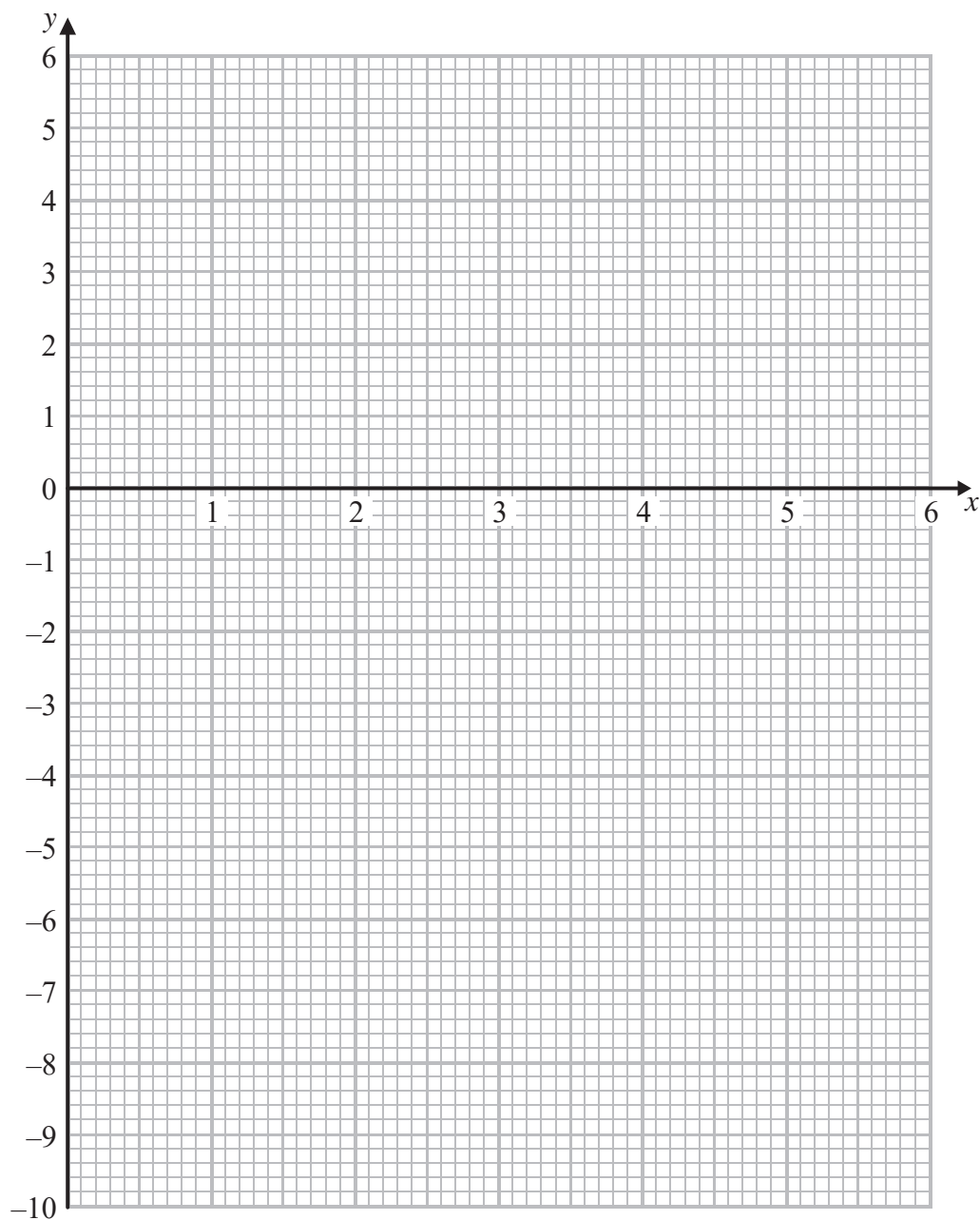
Turn over for a spare grid if you need to redraw your graph.



P 4 8 4 1 2 A 0 3 1 3 2

**Question 11 continued**

**Only use this grid if you need to redraw your graph.**



**(Total for Question 11 is 16 marks)**

**TOTAL FOR PAPER IS 100 MARKS**

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

