8 The points A and B have coordinates $(1, 5)$ and $(9, 9)$ respectively.

(a) Find an equation of line AB, giving your answer in the form $ax + by + c = 0$, where a, b and c are integers to be found.

(3)

The line l is perpendicular to AB and passes through the point X which lies on AB such that $AX : XB = 3:1$

(b) Show that an equation of l is $y = -2x + 22$

(5)

The point C has coordinates $(6, p)$

Given that C lies on l

(c) find the value of p

(1)

$ABCD$ is a parallelogram where the x coordinate of D is negative.

(d) Find the coordinates of the point D

(3)

(e) Find the area of the parallelogram $ABCD$

(4)

Question 8 continued

Question 8 continued

Question 8 continued

(Total for Question 8 is 16 marks)