

**Q11.**

(a) (i) Factorise  $x^2 - 12x + 27$

.....  
.....  
(ii) Solve the equation  $x^2 - 12x + 27 = 0$

.....  
(3)

(b) Factorise  $y^2 - 100$

.....  
(1)

(Total for Question is 4 marks)

**Q12.**

Solve  $x^2 - 5x + 3 = 0$

Give your solutions correct to 3 significant figures.

.....  
(Total for question = 3 marks)

**Q13.**

The expression  $x^2 - 8x + 21$  can be written in the form  $(x - a)^2 + b$  for all values of  $x$ .

(a) Find the value of  $a$  and the value of  $b$ .

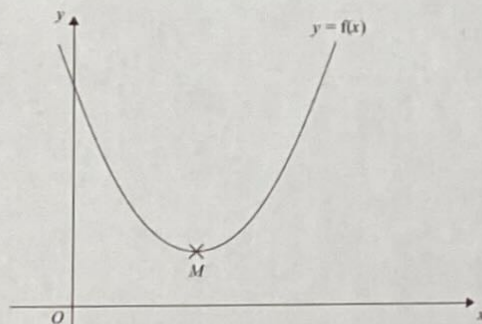
$a =$  .....

$b =$  .....

(3)

The equation of a curve is  $y = f(x)$  where  $f(x) = x^2 - 8x + 21$

The diagram shows part of a sketch of the graph of  $y = f(x)$ .



The minimum point of the curve is  $M$ .

(b) Write down the coordinates of  $M$ .

.....  
(1)

(Total for Question is 4 marks)