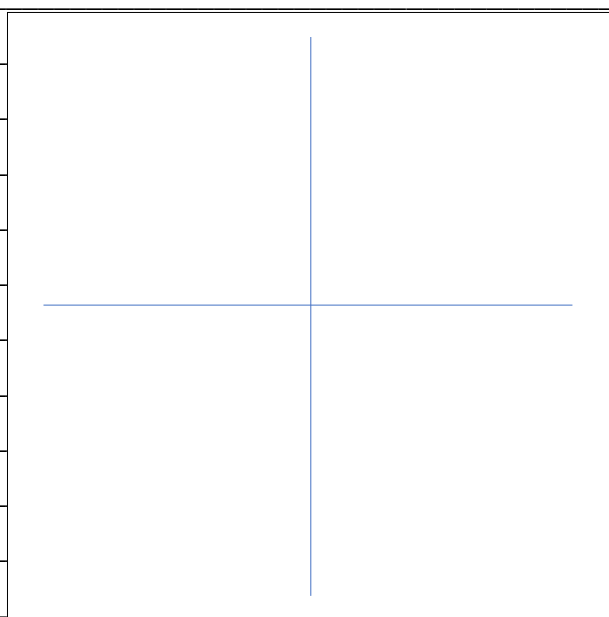
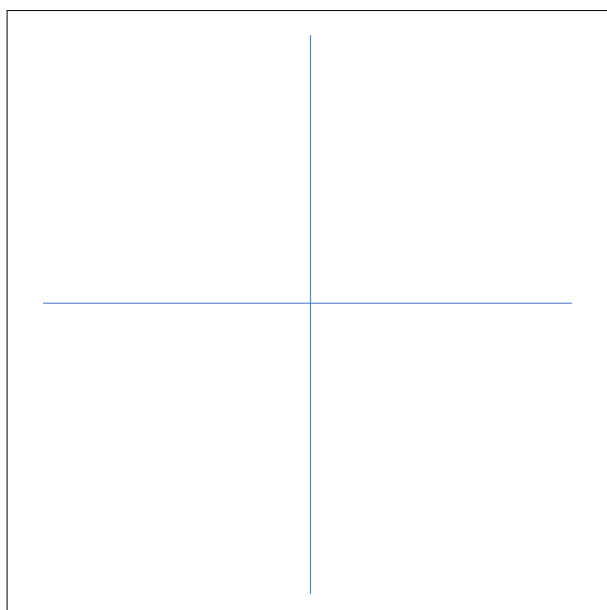




- 1a. Show that $x^2 + 6x + 11$ can be written as, $(x + p)^2 + q$, where p and q are integers to be found. (1)
- b. In the space, sketch the curve with equation $y = x^2 + 6x + 11$, showing clearly any intersections with the coordinate axes. (2)
- c. Find the value of the discriminant of $x^2 + 6x + 11$ (2)



2. On the axes below, sketch the graph of, $y = x(4 - x)$ (2)

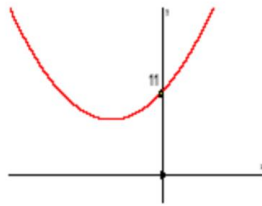


Solutions

1a.

$(x + 3)^2 + 2$	M1
$p = 3,$ $q = 2$	

1b.



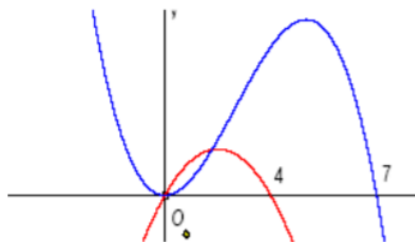
U shape with min in 2nd quad
(Must be above x-axis and not on y = axis)
U shape crossing y-axis at (0, 11) only
(Condone (11,0) marked on y-axis)

1c.

$b^2 - 4ax = 6^2 - 4 \times 11$	M1
$= -8$	M1

2.

RED LINE ONLY



- | | |
|--|----|
| (i) \cap shape (anywhere on diagram) | B1 |
| Passing through or stopping at (0, 0) and (4, 0)
only (Needn't be \cap shape) | B1 |