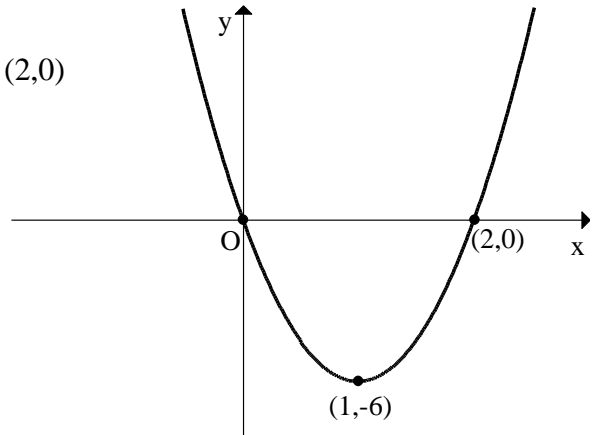


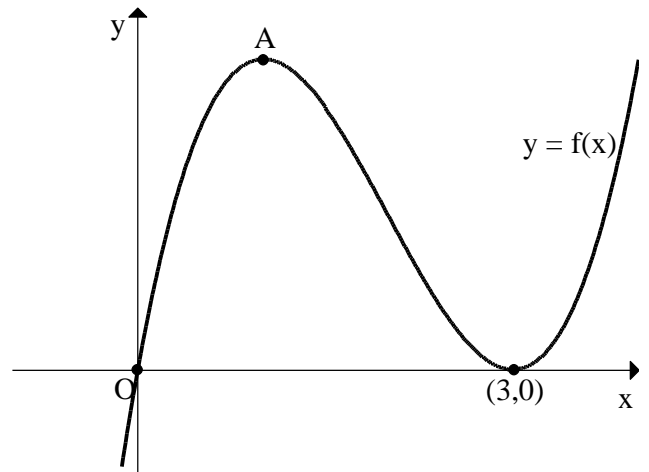
Functions from Graphs

1. The parabola opposite crosses the x-axis at (0,0) and (2,0) and has a minimum turning point at (1,-6).

Find the equation of this parabola.



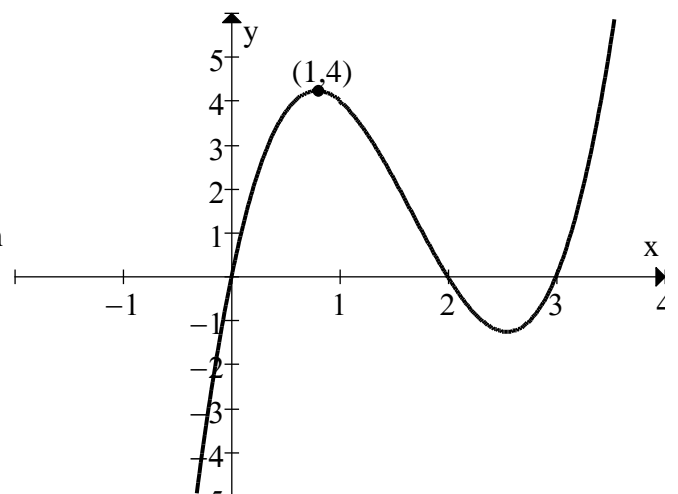
2. In the diagram A is the point (1,12). Find the equation of $f(x)$.



3. The cubic function shown has roots at $x = 0$, $x = 2$ and $x = 3$. It has a maximum turning point at (1,4).

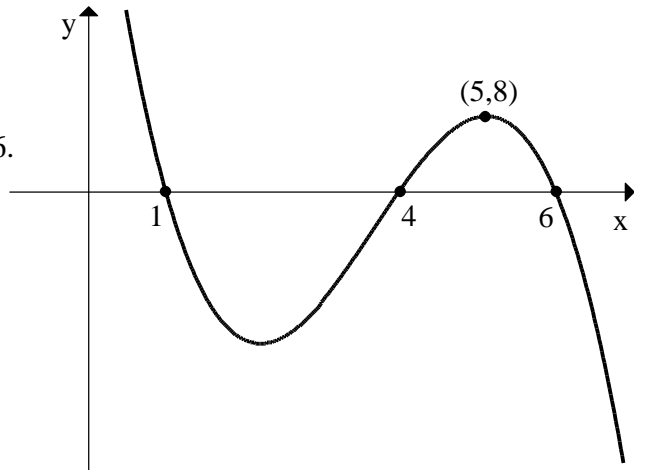
Determine the equation of this cubic function in the form

$$ax^3 + bx^2 + cx + d$$



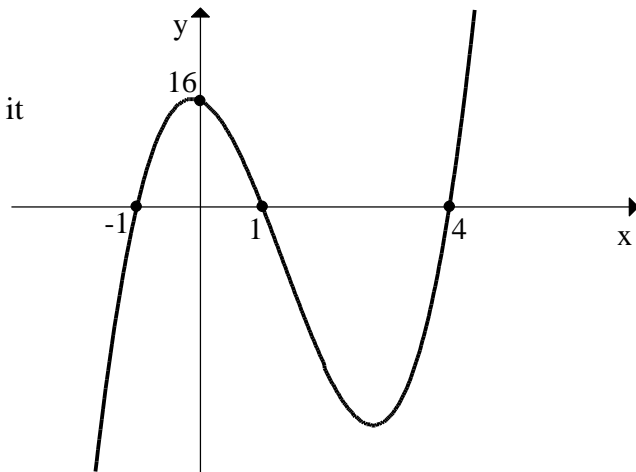
4. The function shown has zeros at $x = 1, 4,$ and 6 .
It has a maximum turning point at $(5,8)$.

Find the equation of this cubic function.



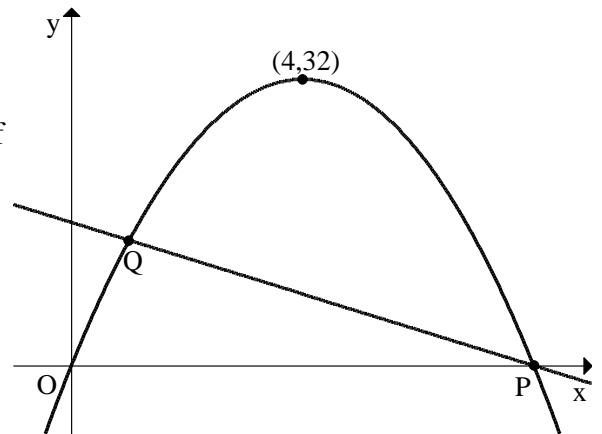
5. The function opposite has roots of $-1, 1$ and 4 and it crosses the y-axis at the point $(0,16)$.

Find the equation of this function.



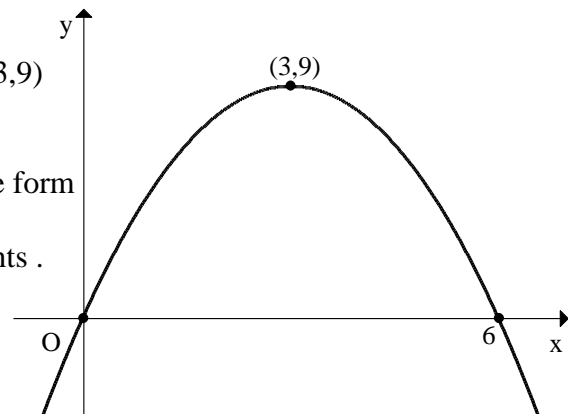
6. The parabola shown has a maximum turning point of $(4,32)$ and P is the point $(8,0)$.

- (a) Find the equation of the parabola.
(b) The line $y = -2x + 16$ intersects this parabola at P and Q. Find the coordinates of Q.



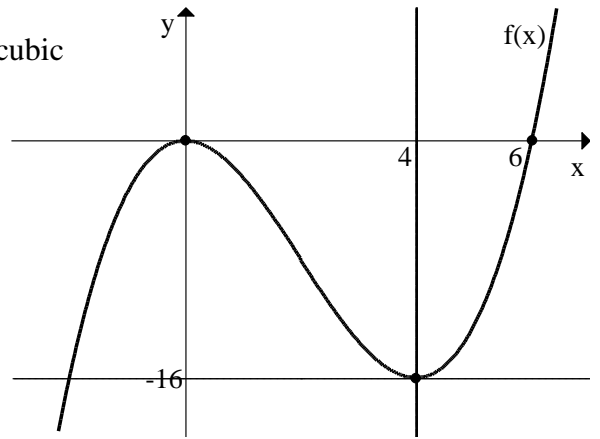
7. A parabola passes through the points $(0,0), (6,0)$ and $(3,9)$ as shown.

- (a) The equation of this parabola can be written in the form $y = ax(b - x)$. Find the values of a and b .
(b) The line $y = x + 4$ intersects this curve at two points. Find the coordinates of these points.



8. The diagram opposite is a sketch of the graph of a cubic function $y = f(x)$.

- (a) If $y = -16$ is a tangent to the curve, find a formula for $f(x)$.
- (b) The line $y = 12x - 32$ crosses this curve at 3 points. Find the coordinates of these points.



9. The diagram shows a parabola passing through $(-1,0)$, $(0,p)$ and $(p,0)$.

Show that the equation of the parabola can be written as

$$y = p + (p - 1)x - x^2.$$

