

# Functions Worksheet 1

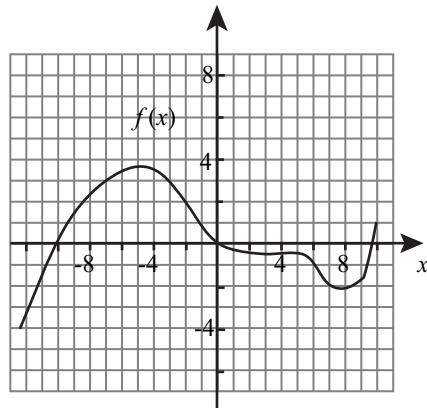


Fig 1

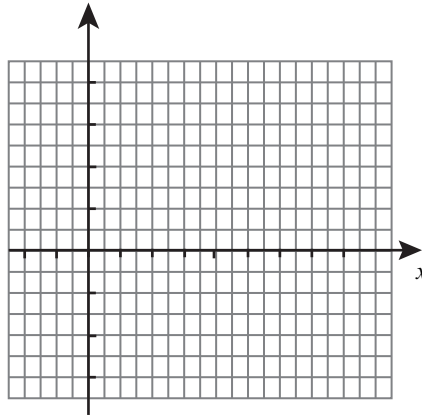


Fig 2

- Given the graph of function  $f(x)$  in Fig 1, find the intervals where  $f(x)$  is increasing/decreasing.
- Referring to the function  $f(x)$  in Fig 1, find the  $x$  and  $y$  intercepts of the function.
- Give an equation of a function for which  $y > 0$  for all values of  $x$ .
- Find the equation of a parabola with  $x$ -intercepts at  $(-1, 0)$  and  $(3, 0)$  and  $y$ -intercept at  $(0, -1)$ .
- Find the period of the function  $g(x) = \cos(t^2 - 7\pi)$ .
- Describe the end behaviour of  $f(x) = x^3 - 2x^2 - 8x$ .
- Find the maxima/minima of the function  $f(x) = 5x^2 + 7x + 15$ .
- Find the intercepts and asymptote of the function  $f(x) = \frac{1}{2x} - 5$  for  $x > 0$ .
- Plot the function in the grid provided above (Fig 2).
- Find the axis of symmetry of  $f(x) = -6x^2 + 7x + 5$ .