

## Year 12 Linear Functions Worksheet



1. Find the values of  $x$  for which  $f(x) = [x(x - 2)]^2$  is an increasing function. Also, find the points on the curve, where the tangent is parallel to  $x$ -axis.
2. Find the equations of the normal to the curve  $y = x^3 + 2x + 6$  which are parallel to the line  $x + 14y + 4 = 0$
3.  $A, B, C$  are the points  $(-1, -2), (2, 5)$  and  $(4, 1)$  respectively, find coordinates of point  $D$  so that  $ABCD$  is a parallelogram.
4. If  $3/(x-2) < 1$ , prove that the value of  $x$  must be greater than 5.

Solve Linear inequalities and find the values of  $x$  for which:

5.  $3x + 4 > 2 \frac{1}{2}$ ;
6.  $3 - 2x \leq -1$ ;
7.  $|x - 1| < 2$ .
8.  $(x^2 - 1) / x > 0$
9.  $(2x + 1) / (x - 2) > 1$