Change of Sign

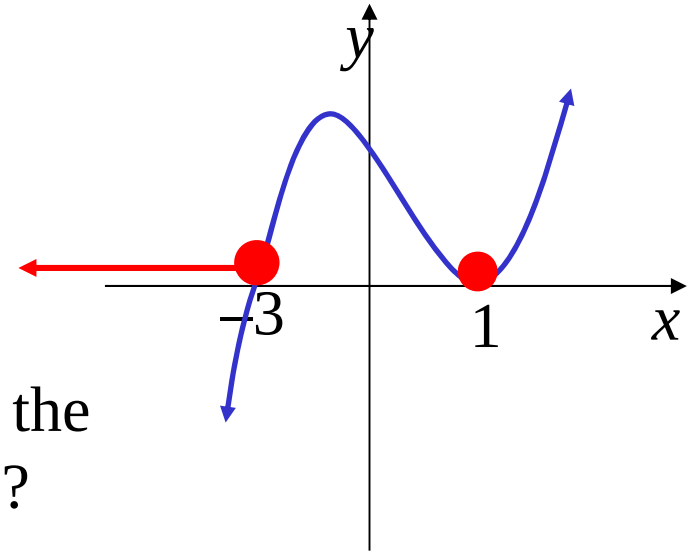
Functions will only change sign;

- at x-intercepts (zeroes)
- at discontinuities

Critical points of an inequation can be found by moving all terms to one side of the inequation and finding when the function created changes sign.

e.g. $(i)\ (x-1)^2(x+3) \le 0$

$x \le -3 \quad \text{or} \quad x = 1$



Q: for what values of x is the curve below the x axis?

$(ii)\ \dfrac{2}{x+3} < 5$

critical points are;

zeroes: $13-5x=0$

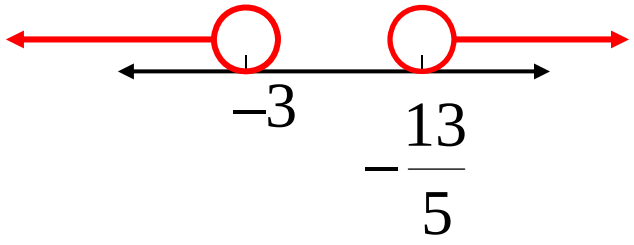
$x=\dfrac{13}{5}$

discontinuities: $x+3=0$

$x=-3$

$\dfrac{13-5x}{x+3} < 0$

$\therefore\ x<-3 \ \text{ or } \ x>-\dfrac{13}{5}$



Exercise 5B; 1, 3bcf, 4ac, 5ac, 6, 7bdfh, 10ac, 11ac, 12