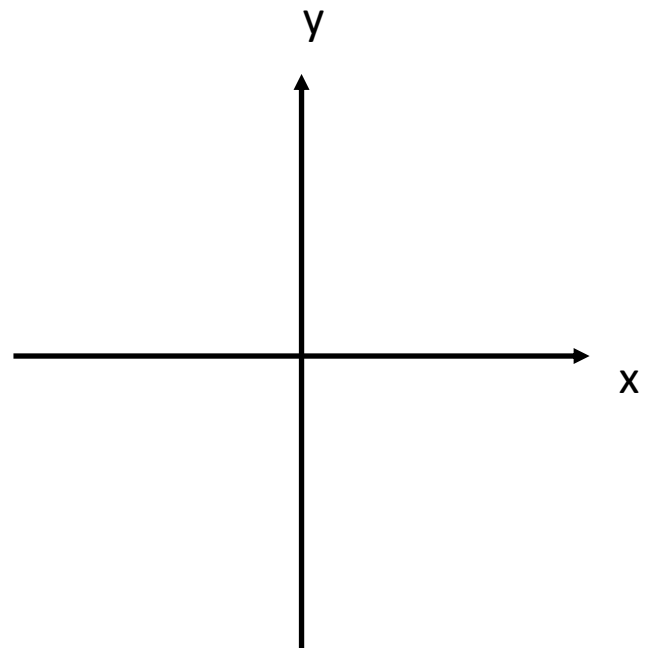
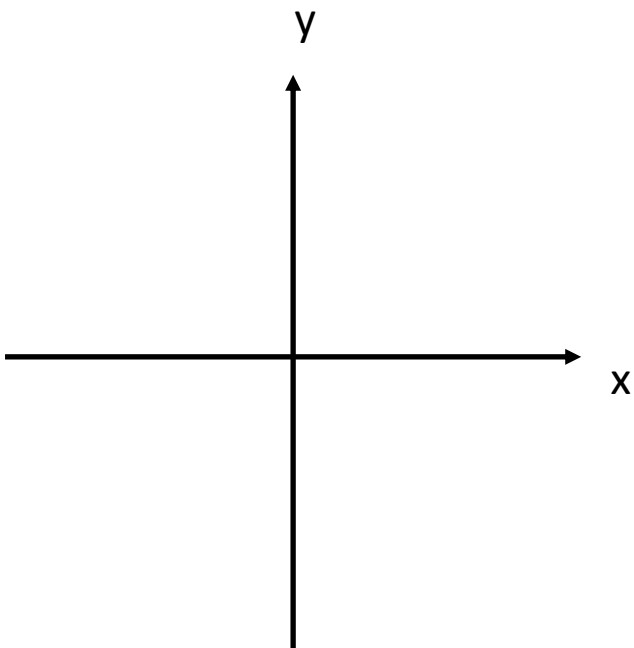
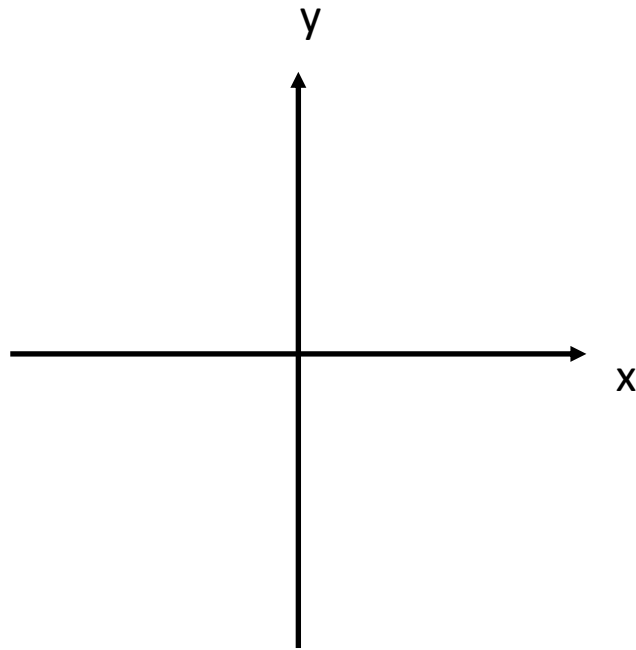


## 4F Stretching Graphs

1. Given that  $f(x) = 9 - x^2$ , sketch the curves with equations:

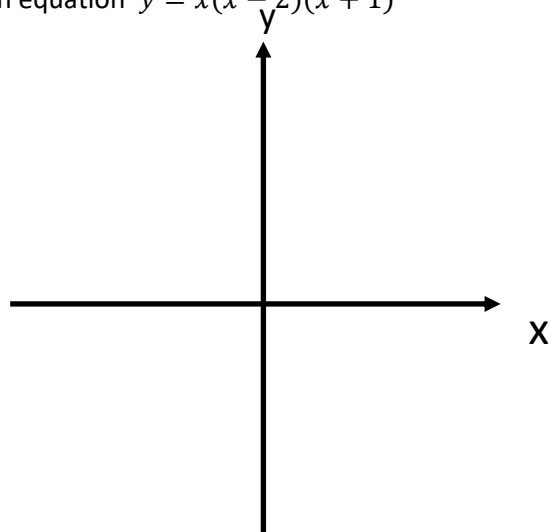
a)  $y = f(2x)$

b)  $y = 2f(x)$

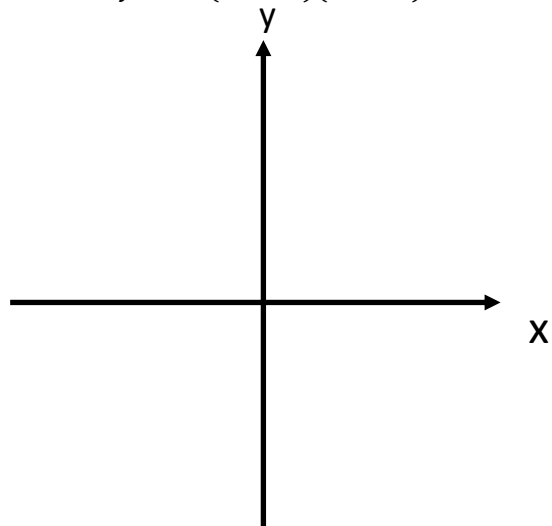


2.

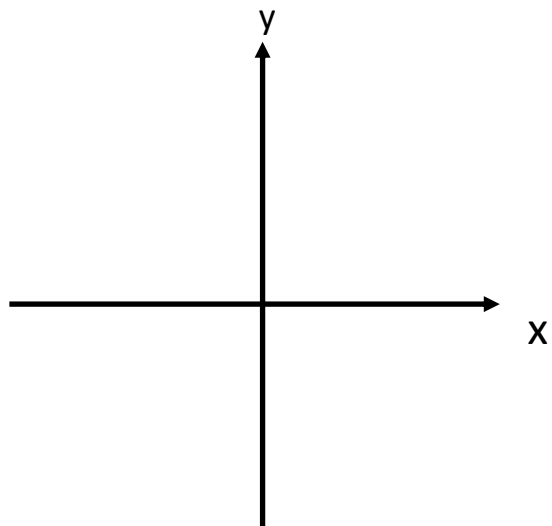
a) Sketch the curve with equation  $y = x(x - 2)(x + 1)$



b) Hence, sketch the curve  $y = 2x(2x - 2)(2x + 1)$



c) Based on your sketch in a), also sketch the curve  $y = -x(x - 2)(x + 1)$



3. On the same set of axes, draw the graphs of  $y = f(x)$ ,  $y = f(-x)$  and  $y = -f(x)$  where  $f(x) = x(x + 2)$

