

3. On separate diagrams, sketch the graphs of

(a) $y = (x + 3)^2$,

(3)

(b) $y = (x + 3)^2 + k$, where k is a positive constant.

(2)

Show on each sketch the coordinates of each point at which the graph meets the axes.



8. The equation $x^2 + 2px + (3p + 4) = 0$, where p is a positive constant, has equal roots.

(a) Find the value of p .

(4)

(b) For this value of p , solve the equation $x^2 + 2px + (3p + 4) = 0$.

(2)



9. Given that $f(x) = (x^2 - 6x)(x - 2) + 3x$,

(a) express $f(x)$ in the form $x(ax^2 + bx + c)$, where a , b and c are constants. (3)

(b) Hence factorise $f(x)$ completely. (2)

(c) Sketch the graph of $y = f(x)$, showing the coordinates of each point at which the graph meets the axes. (3)



