

## Sketching Graphs Using Product & Quotient Rules

Given the following curves  $y = f(x)$

- find the largest domain for which  $f$  can be defined;
- find the coordinates of the axes intercepts and the behaviour of  $x$  as  $x \rightarrow \pm\infty$ ;
- find the coordinates of the stationary points;
- sketch the curve.

1.  $y = x(2x - 9)^2$ .

2.  $y = x^2(x - 6)^2$ .

3.  $y = (2x - 1)^3(3x - 5)^4$ .

4.  $y = (x - 2)\sqrt{2x + 5}$ .

5.  $y = (x^2 - 4)\sqrt{4x - 1}$ .

6.  $y = \frac{x}{x^2 + 4}$ .

7.  $y = \frac{x(4x + 3)}{x^2 + 1}$ .

8.  $y = \frac{\sqrt{x - 1}}{x + 1}$ .

9.  $y = (x - m)^n(x - n)^m$ . where  $m$  and  $n$  are odd natural numbers.