**Graphs of Rational Functions – Starter Questions**

1. Describe these graphs:
2. , , ,
3. , , ,
4. , , ,
5. Find the values where each of the curves below crosses the *x* and *y* axes:
6.

**Extension:**

1. Define ‘asymptote’.
2. State (with reasons) whether a curve may or may not cross an asymptote.

Answers

Value a = negative of the x value through which a vertical asymptote will pass.

Value b = scale factor of vertical stretch which transforms graph onto given graph.

x=-1, y=1/3

x=2, y=-4

x=-1/2, y=-1/8

Asymptote = the line to which the *distance from the curve* *to the line* tends to zero as the curve tends to ±∞.

A curve may pass through an asymptote, we’ll check back on this one later.

A rational function is a function that is given by one polynomial divided by another, eg;

Examples of linear/quadratic rational functions