

Basic Mathematics - Quiz 7

Solutions

Give the intercepts and vertical asymptotes of the following rational function:

$$f(x) = \frac{3x - 2}{(2x + 3)(x - 1)}.$$

The x -intercepts and the y -intercepts are the intersections of the graph with the x -axis and y -axis respectively.

The x -intercepts are the x 's such that $f(x) = 0$. In this case, $f(x) = 0$ if and only if $3x - 2 = 0$ so the x -intercept is $2/3$ (notice that the denominator does not vanish at $x = 2/3$).

The y -intercept is $f(0) = -2/(3 \times (-1)) = 2/3$.

The vertical asymptotes are given by $x = x_0$ where x_0 runs over the roots of the denominator that are not roots of the numerator. Hence, the vertical asymptotes of f are $x = -3/2$ and $x = 1$.