

Answer on Question 42995, Math, Calculus

$$f(x) = \frac{3x^2 - 4x - 3}{2x^2 - 3x + 2}$$

The horizontal asymptotes are found, evaluating limits of the function as it approaches positive or negative infinity:

$$y = \lim_{x \rightarrow \infty} f(x) = \lim_{x \rightarrow \infty} \frac{3x^2 - 4x - 3}{2x^2 - 3x + 2} = \frac{3}{2} \quad \text{- this is the horizontal asymptote as } x \text{ goes to infinity.}$$

$$y = \lim_{x \rightarrow -\infty} f(x) = \lim_{x \rightarrow -\infty} \frac{3x^2 - 4x - 3}{2x^2 - 3x + 2} = \frac{3}{2} \quad \text{- this is the horizontal asymptote as } x \text{ goes to minus infinity.}$$