Answer on Question #43005 – Math - Calculus

Task:

State the vertical asymptote of the rational function $f(x)=\frac{(x-8)(x+4)}{x^2-9}$.

help me please and show work.

Solution:

In practice, the vertical asymptotes are found quite easily. These points are zeros of the denominator of function f(x).

The vertical asymptote is a vertical line. Its equation is x = a. That is, when x tends to a (from the right or from the left), the function tends to infinity (positive or negative).

$x^2-9=0$

So, $\left[\begin{array}{l} x_1=3 \\ x_2=-3. \end{array}\right.$ These are the vertical asymptotes of function $f(x)=\frac{(x-8)(x+4)}{x^2-9}$.

Answer: $\left[\begin{array}{l} x_1=3 \\ x_2=-3. \end{array}\right.$ - vertical asymptotes.