

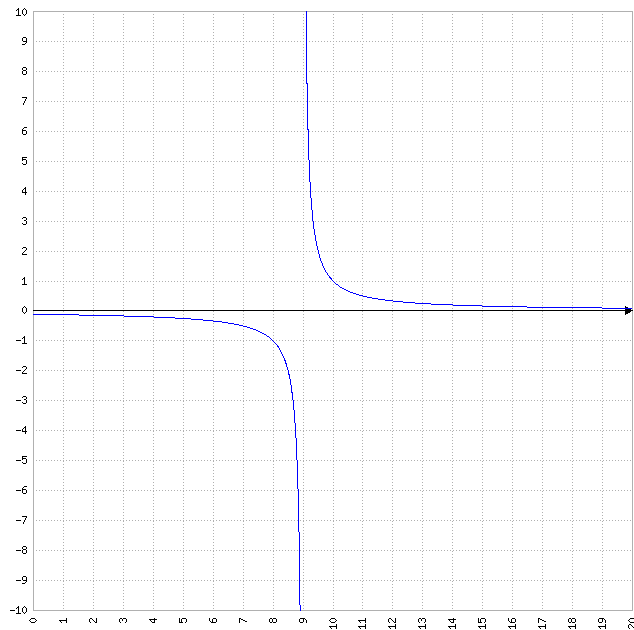
Answer on Question #53839 – Math – Calculus

Use graphs and tables to find the limit and identify any vertical asymptotes of limit of 1 divided by the quantity x minus 9 as x approaches 9 from the left.

Solution

$$y = \frac{1}{x - 9}$$

| | | | | | | | |
|----------|-----------|------------|------------|------------|-------------|-------------|--------------|
| x | 8 | 8.5 | 8.8 | 8.9 | 8.95 | 8.99 | 8.999 |
| y | -1 | -2 | -5 | -10 | -50 | -100 | -1000 |



$$\lim_{x \rightarrow 9^-} \frac{1}{x-9} = -\infty, \text{ similarly } \lim_{x \rightarrow 9^+} \frac{1}{x-9} = +\infty.$$

$x=9$ is the vertical asymptote