

MCV4U
Review

1.4 – Limits

Evaluate $\lim_{x \rightarrow 3} \left(\frac{1}{x-3} - \frac{6}{x^2-9} \right)$

Solution:

$$\begin{aligned} & \lim_{x \rightarrow 3} \left(\frac{1}{x-3} - \frac{6}{x^2-9} \right) \\ &= \lim_{x \rightarrow 3} \left(\frac{1}{x-3} - \frac{6}{(x-3)(x+3)} \right) \\ &= \lim_{x \rightarrow 3} \left(\frac{x+3}{(x+3)(x-3)} - \frac{6}{(x-3)(x+3)} \right) \\ &= \lim_{x \rightarrow 3} \left(\frac{x-3}{(x+3)(x-3)} \right) \\ &= \lim_{x \rightarrow 3} \left(\frac{1}{x+3} \right) \\ &= \frac{1}{6} \end{aligned}$$

Factored Form is Your Friend

Common Denominator

Simplify the fraction

Cancel FACTORS NOT TERMS

Take the limit like a Hero

In order to insert mathematical work you need to:

Insert

Object

Formula

From the menu in LibreOffice

LibreOffice code for the above solution

```
alignl lim csub{x rightarrow 3 } left ( alignc {1} over {x-3} - {6} over {x^2-9} right ) newline
alignl {}={}lim csub{x rightarrow 3 } left ( alignc {1} over {x-3} - {6} over {(x-3)(x+3)}
right ) newline
alignl {}={}lim csub{x rightarrow 3 } left ( alignc {x+3} over {(x+3)(x -3)} - {6} over {(x-3)
(x+3)} right ) newline
alignl {}={}lim csub{x rightarrow 3 } left ( alignc {x-3} over {(x+3)(x-3)} right ) newline
alignl {}={}lim csub{x rightarrow 3 } left ( alignc {1} over {x+3} right ) newline
alignl {}={} {1} over {6}
```