Heduin R B de Morais
BrockU ID: 6967483
Campus ID: hr19ut
Math 1P01 - Lab #04
Assingment #01 - Maple
Question 36 - Guess the value of the limit (if it exists) by evaluating the function at the given numbers.

Let's create a list of entries for h to be added and subtracted to/from x:

```
> A:=[0.1,0.05,0.01,0.001,0.0001];
```

$$A := [0.1, 0.05, 0.01, 0.001, 0.0001] \quad \textbf{(1)}$$

```
> B:=[-0.1,-0.05,-0.01,-0.001,-0.0001];
```

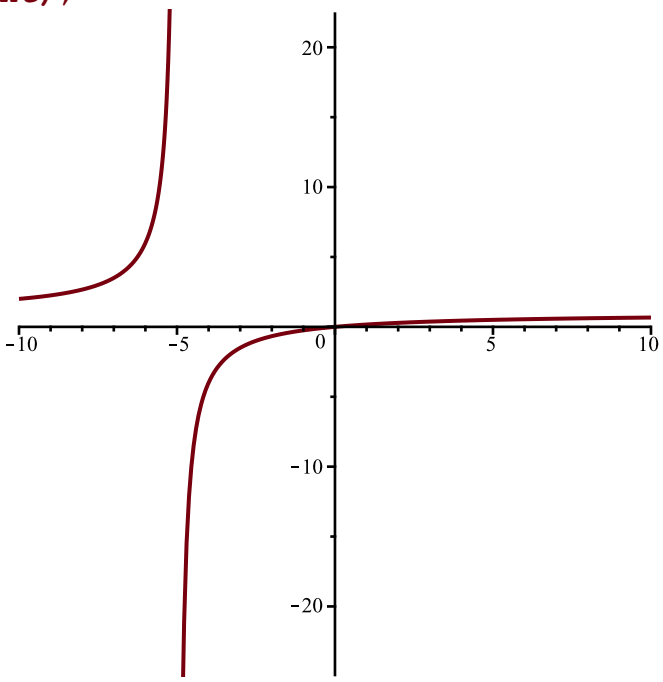
$$B := [-0.1, -0.05, -0.01, -0.001, -0.0001] \quad \textbf{(2)}$$

Let's define the given function as f, where domain D = R-{-5,5}

```
> f:=x->(x^2-5*x)/(x^2-25);
```

$$f := x \mapsto \frac{x^2 - 5 \cdot x}{x^2 - 25} \quad \textbf{(3)}$$

```
> plot(f, discont);
```



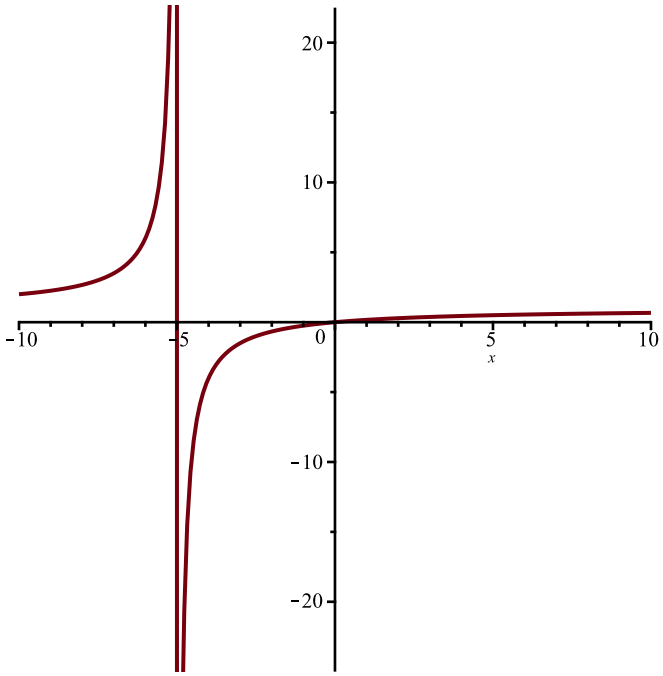
Lets simplify f(x), and atribute its value to another function called s, where x not equal to -5, 5:

```
> s:=simplify(f(x));
```

$$s := \frac{x}{x + 5} \quad \textbf{(4)}$$

Let's verify that they present the same graph scratch:

```
> plot(s);
```



Please note the vertical asymptote x=-5, and f(5) is also not defined (but the empty circle is not marked on the graph).
Now let's substitute the values for (x+h) to answer the question.

```
> f(5.1);
```

0.5049504950 **(5)**

```
> f(5.05);
```

0.5024875622 **(6)**

```
> f(5.01);
```

0.5004995005 **(7)**

```
> f(5.001);
```

0.5000499950 **(8)**

```
> f(5.0001);
```

0.5000050000 **(9)**

```
> f(4.9);
```

0.4949494949 **(10)**

```
> f(4.95);
```

0.4974874372 **(11)**

```
> f(4.99);
```

0.4994994995 **(12)**

```
> f(4.999);
```

0.4999499950 **(13)**

```
> f(4.9999);
```

0.4999949999 **(14)**