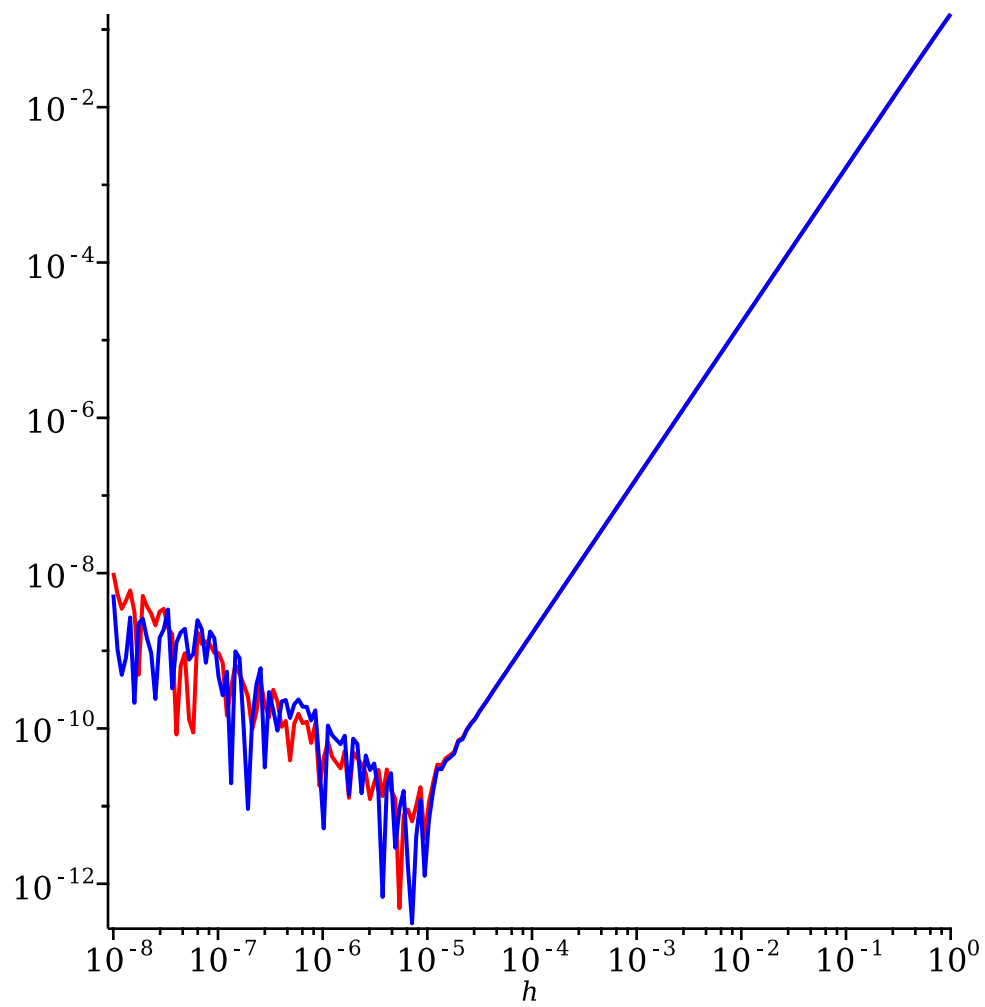


```

> restart;
> with(plots) :
>
> y := t→cos(t)
                                 $y := t \mapsto \cos(t)$  (1)
> exact_speed := t→-sin(t)
                                 $exact\_speed := t \mapsto -\sin(t)$  (2)
> t_val := evalf( $\frac{\text{Pi}}{2}$ )
                                 $t\_val := 1.570796327$  (3)
>
> forward_difference := (t, h)→  $\frac{y(t+h) - y(t)}{h}$ 
                                 $forward\_difference := (t, h) \mapsto \frac{y(t+h) - y(t)}{h}$  (4)
> central_difference := (t, h)→  $\frac{y(t+h) - y(t-h)}{2 \cdot h}$ 
                                 $central\_difference := (t, h) \mapsto \frac{y(t+h) - y(t-h)}{2 \cdot h}$  (5)
>
> forward_error := h→abs(exact_speed(t_val) - forward_difference(t_val, h))
                                 $forward\_error := h \mapsto |exact\_speed(t\_val) - forward\_difference(t\_val, h)|$  (6)
> central_error := h→abs(exact_speed(t_val) - central_difference(t_val, h))
                                 $central\_error := h \mapsto |exact\_speed(t\_val) - central\_difference(t\_val, h)|$  (7)
> loglogplot([central_error(h), forward_error(h)], h = 10-8 .. 1, color = [red,
                                blue])

```



==
=>
=>