FB1:

The limit in question does not exist with just any value of *d* since the denominator evaluates to 0 when 3 is input as x. Since one cannot divide by zero, the function has to be simplified, which is usually done by factoring both the numerator and denominator. The denominator can be factored as . Since the part is the one which evaluates to 0 when x is 3, it would be very convenient if the numerator was also a factor of . This can be achieved by dividing the numerator by and making the remainder equal 0. Therefore,

with the remainder of . When equating the remainder to 0, *d* is found to be . Hence, the limit becomes