1)

**L'Hôpital's Rule**

2)

<https://socratic.org/questions/what-is-the-limit-of-e-x-x-1-x-as-x-approaches-infinity>

**raised to the power**

**Log Rule**

*move the limit inside of the exponential function*

Still in indeterminate form .

**L'Hôpital's Rule**

**Chain rule**

*Common derivative*

3)

<https://www.enotes.com/homework-help/lim-x-gt-1-lnx-tan-pix-2-find-limit-use-544685>

Prepare the limit for L'Hospital's rule, by writing it as a quotient

**Chain rule**

*Common derivative*

4) <https://www.wolframalpha.com/input/?i=integrate+%281%2Bsqrt%28y%29%29%5E1%2F4%2F%28sqrt%28y%29%29dy>

*U-substitution*

*Power rule*

5) <https://www.wolframalpha.com/input/?i=integrate+%28%28sec%5E2%28%5Cpi+ln%28x%29%29%29%2F%283x%29%29dx>

*U-substitution*

6)

<https://www.wolframalpha.com/input/?i=integrate+%28tan4x%29%5E1%2F4+sec%5E2+4x+dx>

*U-substitution*

*S-substitution*

**Common Derivatives**

*Power rule*

7)

<https://www.wolframalpha.com/input/?i=integrate+%283-2t%29%5E-4+dt>

*U-substitution*

8)

<https://www.wolframalpha.com/input/?i=integrate+cos%282%2Bln%28sqrt%28x%29%29%29%29%2Fx+dx>

*U-substitution*

9)

<https://www.wolframalpha.com/input/?i=integrate+-1%28cosx%29%5E2+dx>

The might indicate that U-substitution has already been used

Try to convert into something that doesn’t have a squared

**Half Angle Formula**

*Sum rule*

*U-substitution*

10)

11)

<https://www.wolframalpha.com/input/?i=integrate+%28x-1%29%2F%283x%5E2-6x%29+from+3+to+4>

*U-substitution*

Change lower bound:

Change upper bound:

**Common integral**

Evaluate limits

12)

<https://www.wolframalpha.com/input/?i=integrate+%28x%5E3+ln+x%29>+

**Log Rule**

Or

To choose an expression for and more accurately, use L→I→A→T→E

The first letter that comes up, use for

The second letter that comes up, use for

*Integration by parts*

13)

14)

15)

16)