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Math 101 – T04

Tutorial 9: 2b, 3b, 4b, 5b

(b)
$$\lim_{x \to 0} \frac{3 + x^{-1} \times -3 \times + x^{3}}{x^{5}}$$

= $\lim_{x \to 0} \frac{3}{3} \left[\frac{3 - x^{5}}{3} + \frac{x^{5}}{3} - \frac{3}{3} + \frac{x^{5}}{3} \right]$

= $\lim_{x \to 0} \left[\frac{3x - 3x}{x^{5}} \right] + \left(\frac{3x - x^{3}}{3^{5}} + \frac{x^{5}}{3^{5}} - \frac{3}{3} \right]$

= $\lim_{x \to 0} \left[\frac{3x - 3x}{x^{5}} \right] + \left(\frac{x^{3}(1-1)}{3^{5}} \right) + \frac{x^{5}}{5} - \frac{3}{3^{5}} + \frac{3}{5} - \frac{3}{5} + \frac{3}{5} + \frac{3}{5} - \frac{3}{5} + \frac{3}{5} - \frac{3}{5} + \frac{3}{5} - \frac{3}{5} + \frac{3}{5} + \frac{3}{5} - \frac{3}{5} + \frac{3}{5} + \frac{3}{5} - \frac{3}{5} + \frac{3}{5} - \frac{3}{5} + \frac{3}{5} + \frac{3}{5} - \frac{3}{5} + \frac{3}{5} - \frac{3}{5} + \frac{3}{5} + \frac{3}{5} - \frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} - \frac{3}{5} + \frac$

<u>3b:</u>

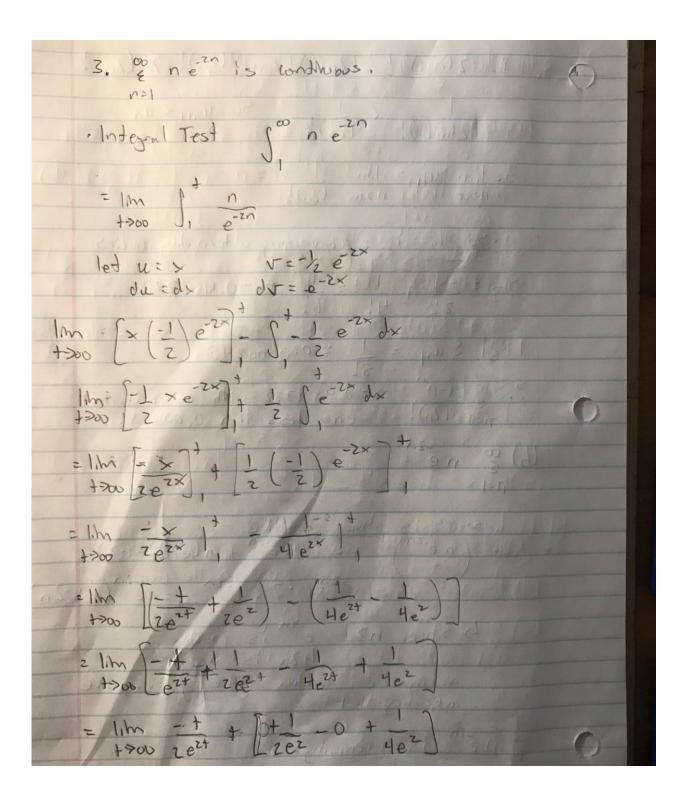
$$(5) (1+5x^{2})^{-1/5} = (1+15x^{2})^{-1/5}$$

$$= 1 + (-\frac{1}{5})(5x^{2}) + (-\frac{1}{5})(-\frac{1}{5})(5x^{2})^{2} + (-\frac{1}{5})(-\frac{1}{$$

<u>4b:</u>

(b)
$$1 + \frac{x}{2} + \frac{x^{3}}{3} + \frac{x^{3}}{3$$

(b) & ne ⁻²ⁿ
1. saries is always posithe 2. (ne-2n) = (1) e 2n + n(e-2n).(-2)
$= e^{-2n} + -2n e^{-2n} = e^{-2n} (1+-2n)$
4 Since n? l'ezn is possible
since n? I e is possible 1+2n is nowhe nown the Sundan (net)! negative meaning that
one ne is de creasing



LH = 1/m - 1 + 3 = $\frac{3}{4}$ 0,10/50/4/24 +>00 $4e^{24}$ $4e^{2}$ $4e^{2}$