Review for test 1

Reverse order

Compute derivatives, slopes of tangents and eqns of tangent lines (5 problems)

p148 # 1, 5, 13, 31

p141 #23 - 38

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p125 # 23, 25, 29, 30, 39
3, 5, 6

Compute limits Chapter Review p115 # 13, 15, 36, 41

p98 # 17, 18, 20

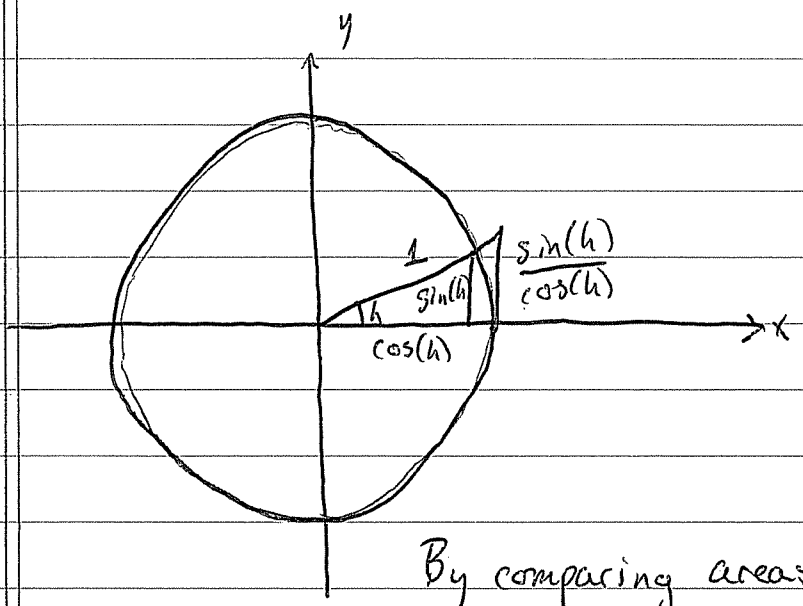
Use squeeze theorem to prove

$$\lim_{h \to 0^+} \frac{\sin(h)}{h} = 1$$

(See Next page)

1 complete the square eg $y = 3x^2 + 5x - 7$

1 solve inequality eg $2 \leq |4x + 3|$



By comparing areas

$$\frac{1}{2}\sin(h)\cos(h) \le \frac{1}{2}h(1)^2 \le \frac{\sin(h)}{\cos(h)}$$

$$h \le \frac{\sin(h)}{\cos(h)} \quad *$$

$$\cos(h)\,h \le \sin(h)$$

$$\cos(h) \le \frac{\sin(h)}{h}$$

$$\sin(h)\cos(h) \le h \quad *$$

$$\frac{1}{h\cos(h)}\sin(h)\cos(h) \le h\,\frac{1}{h\cos(h)}$$

$$\frac{\sin(h)}{h} \le \frac{1}{\cos(h)}$$

$$\cos(h) \le \frac{\sin(h)}{h} \le \frac{1}{\cos(h)}$$

$h \to 0^+$ $\quad$ $h \to 0^+$

1 $\quad$ 1

$h \to 0^+$

1

$*$ inequalities can be divided since $0 < h$ & $\cos(h) > 0$.