Review for Test 1

Reverse order

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

p 148 # 1, 5, 13, 31

p 141 # 23 - 38

p 125 # 23, 25, 29, 30, 39
# 3, 15, 16

Compute limits (Chapter Review) # 13, 15, 36, 41
p 115

p 98 # 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,

\[
\frac{1}{2} \sin(h) \cos(h) \leq \frac{1}{2} h(l)^2 \leq \frac{\sin(h)}{\cos(h)}
\]

\[h \leq \frac{\sin(h)}{\cos(h)}\]

\[\cos(h) h \leq \sin(h)\]

\[\cos(h) \leq \frac{\sin(h)}{h}\]

\[\frac{\sin(h) \cos(h)}{h} \leq \frac{1}{\cos(h)}\]

\[\sin(h) \leq \frac{1}{\cos(h)}\]

\[\cos(h) \leq \frac{\sin(h)}{h} \leq \frac{1}{\cos(h)}\]

\[h \to 0^+ \quad \Rightarrow\quad 1 \quad \Rightarrow\quad 1\]

\[\text{and inequalities can be divided since } 0 < h \neq 0, \quad \cos(h) > 0.\]