

Name: \_\_\_\_\_

## Calculus Your Try Problems for Chapter 2

2c) Use  $f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$  to show that  $f(x) = x^2 \rightarrow f'(x) = 2x$  .

2d) Use Pascal's Triangle to find  $(x+h)^6$  . Then find  $f'(x) = \lim_{h \rightarrow 0} \frac{(x+h)^6 - (x)^6}{h}$  .

2e) (Advanced) Use your math reference and  $f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$  to find a formula for  $f'(x)$  when  $f(x) = \tan x$  .

2f) Find  $f'(x)$  when  $f(x) = e^{5x}$  .

2g) Use  $f'(x)$  to determine where  $f(x) = x^3 + 6x^2 - 15x$  is horizontal.

2h) Determine the regions where  $f(x) = x^3 + 6x^2 - 15x$  is concave up and where it is concave down.

2i) Repeat the procedure in the video with your own squiggly  $f(x)$  .

2j) Repeat the procedure in the video with your own squiggly  $f'(x)$  .