

Topic: limits by substitution or  
by graph.

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To find  $\lim_{x \rightarrow c} f(x)$  by substitution,  
substitute  $x=c$  into the formula  
for  $f$ .

p. 66 # 7 subst., support graphically

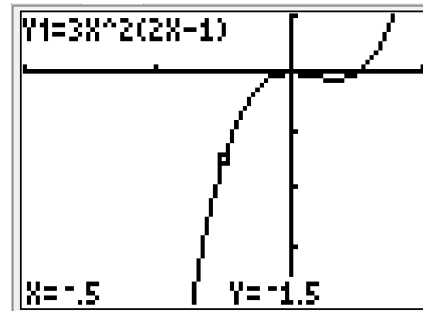
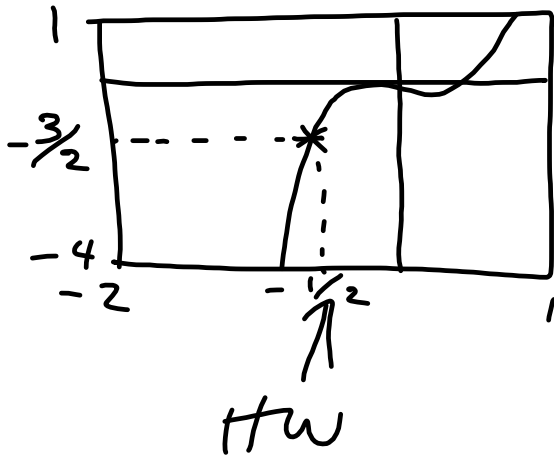
$$\begin{aligned}\lim_{x \rightarrow -\frac{1}{2}} 3x^2(2x-1) &= 3 \cdot \frac{1}{4} (-1-1) \\ &= \frac{3}{4} (-2) = -\frac{3}{2}\end{aligned}$$

Calculator - useful stuff.

ALPHA-F1  $\frac{n}{a}$

ALPHA-F2 deriv.  
integral (definite)

ALPHA-F4  $Y_1, Y_2, \text{etc.}$



confirm algebraically:

$$\frac{x-1}{x^2-1}$$

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

X	Y1	
.9997	.50008	
.9998	.50005	
.9999	.50003	
1	ERROR	
1.0001	.49998	
1.0002	.49995	
1.0003	.49993	
X=1.0003		

$$\lim_{x \rightarrow 1} \frac{\cancel{x-1}}{(x+1)\cancel{(x-1)}}$$

can cancel  
b/c of def'n of  
limit

$$= \lim_{x \rightarrow 1} \frac{1}{x+1} = \frac{1}{1+1}$$

$$= \frac{1}{2} \checkmark$$