

For each limit in problems 1 through 5, verify that the expression is of the form  $0/0$  at the limit point. Then compute the limit using the "Limits don't care about one point" rule. For each limit computation, start by writing out the expression

$$\lim_{x \rightarrow a} f(x) =$$

for the specific values of  $f$ ,  $a$  and  $x$ . Then carry on from here. Circle the equality in your computation where the "Limits don't care about one point" rule gets used.

1. Compute  $\lim_{h \rightarrow 0} \frac{(3+h)^2 - 9}{h}$ .

2. Compute  $\lim_{x \rightarrow 3} \frac{\frac{1}{x} - \frac{1}{3}}{x - 3}$ .

3. Compute  $\lim_{h \rightarrow 0} \frac{\sqrt{2+h} - \sqrt{2}}{h}$ .

4. Compute  $\lim_{h \rightarrow 0} \frac{\frac{1}{2+h} - \frac{1}{2}}{h}$ .

5. Compute  $\lim_{x \rightarrow 2} \frac{x^3 - 8}{x - 2}$ .

6. Compute  $\lim_{x \rightarrow 0} x^2 \sin(1/x)$ . [Ask me about the Squeeze Theorem!]

7. Compute  $\lim_{x \rightarrow 6^+} \frac{6 + |x|}{6 - x}$ .

8. Compute  $\lim_{x \rightarrow 6^-} \frac{6 + |x|}{6 - x}$ .