LIMITS

– What is the y-coord. approaching?

$\lim_{x \to -6^-} f(x) = +\infty$

$\lim_{x \to -6^+} f(x) = -\infty$

$\lim_{x \to -6} f(x) = \text{DNE}$

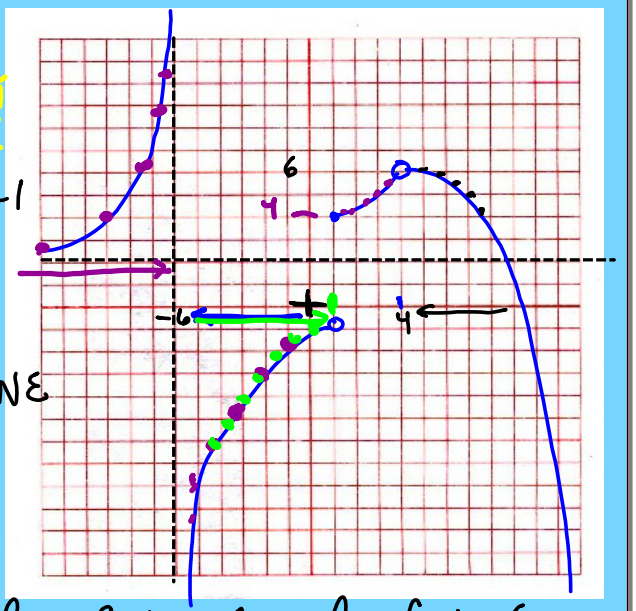
$f(-6) = \text{undefined}$

$\lim_{x \to 1^-} f(x) = -1$

$\lim_{x \to 1^+} f(x) = 4$

$\lim_{x \to 1} f(x) = \text{DNE}$

$f(1) = 4$



$\lim_{x \to +\infty} f(x) = -\infty$

$\lim_{x \to -\infty} f(x) = 2$

$\lim_{x \to 4^-} f(x) = 6$

$\lim_{x \to 4^+} f(x) = 6$

$\lim_{x \to 4} f(x) = 6$

$f(4) = \text{Undef.}$

Draw a graph:

Domain: $[-5, \infty)$

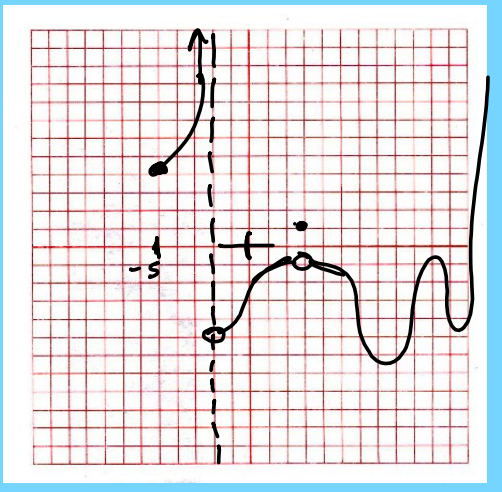
$f(-2) =$ undef. open circle or asymptote

$f(3) = 1$ $(3,1)$

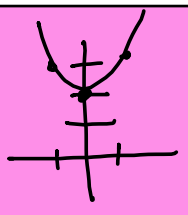
$\lim_{x \to -2^-} f(x) = +\infty$

$\lim_{x \to -2} f(x) =$ DNE

$\lim_{x \to 3} f(x) = -1$



$$\lim_{x \to 1} x^2 + 2 = 3$$

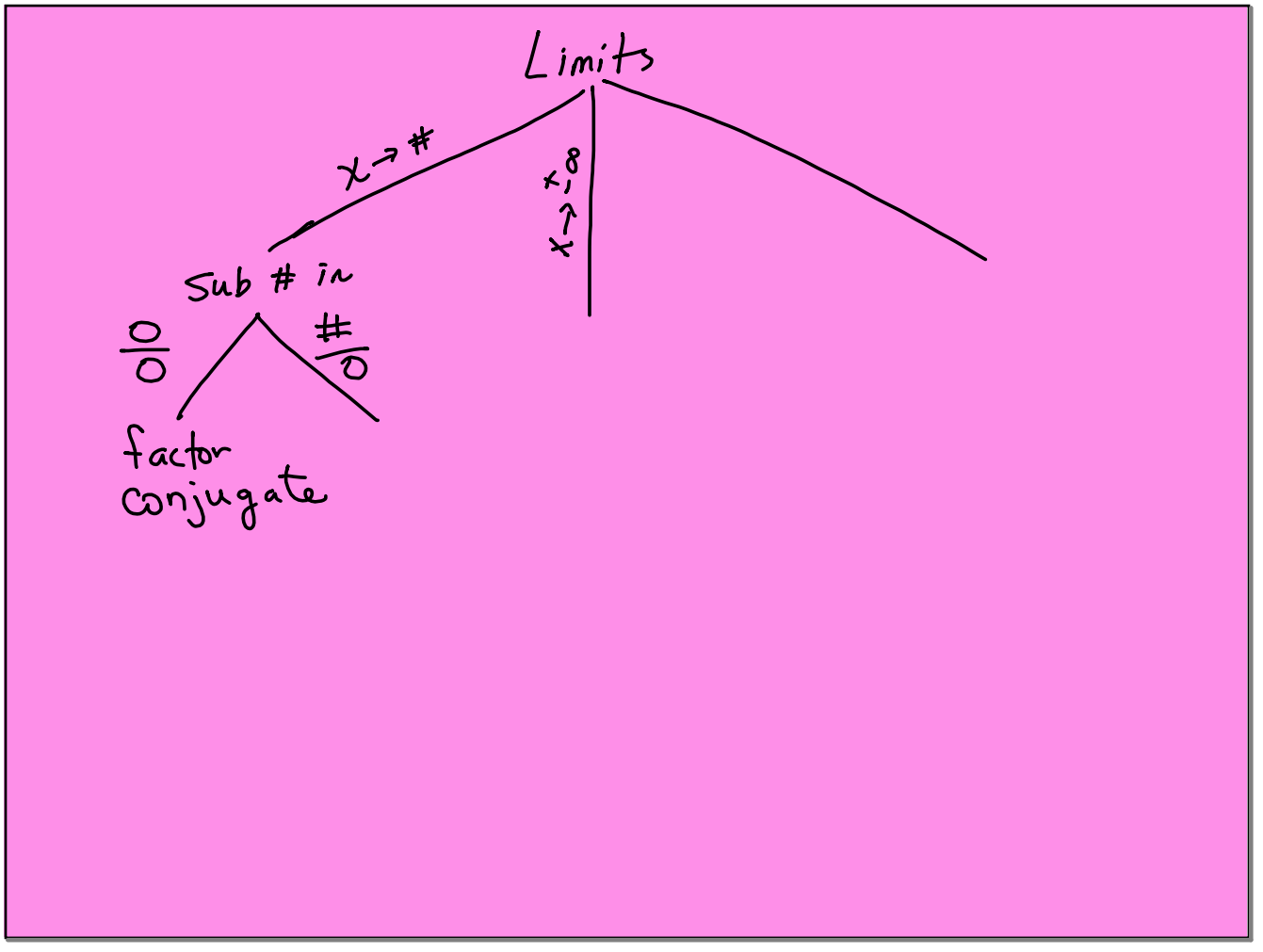


$$\lim_{x \to 2} \frac{3x^2 - 4x - 4}{x - 2} = \frac{0}{0}$$ ← indeterminate form

$$\lim_{x \to 2} \frac{(3x+2)(x-2)}{x-2} = \boxed{8}$$

$$\lim_{x \to 3} \frac{x^2 - 4x + 3}{x^3 - 27} = \frac{0}{0}$$

$$\lim_{x \to 3} \frac{(x-3)(x-1)}{(x-3)(x^2+3x+9)} = \frac{2}{27}$$


Limits
$x \to \#$
$x \to \infty$
$x \to -\infty$
Sub # in
$\frac{0}{0}$
$\frac{\#}{0}$
factor
conjugate

$$\lim_{h\to 0} \frac{\sqrt{9+h}-3}{h} \quad \left(\sqrt{9+h}+3\right)\left(\sqrt{9+h}+3\right) = \frac{3-3}{0} = \frac{0}{0}$$

$$\lim_{h\to 0} \frac{9+h-9}{h\left(\sqrt{9+h}+3\right)}$$

$$\lim_{h\to 0} \frac{h}{h\left(\sqrt{9+h}+3\right)} = \frac{1}{3+3} = \frac{1}{6}$$