

## Solutions for Pg 106

(These solutions have not been validated by High Priestess Hyperbolica)

4)  $\lim_{x \rightarrow 0} \frac{4(\sqrt{x+2} - \sqrt{2})}{x} \approx 1.4142$

This is the best you can approximate this given  $\pm 0.1$ ,  $\pm 0.001$ , and  $\pm 0.00001$  in your table  
Of course, a good guess is that this is exactly  $\sqrt{2}$

6)  $\lim_{x \rightarrow 0} \frac{\ln(x+5) - \ln 5}{x} = \frac{1}{5}$

8) a)  $\lim_{x \rightarrow 2} g(x)$  DNE since as  $x \rightarrow 2^-$ ,  $g(x) \rightarrow -\infty$   
and as  $x \rightarrow 2^+$ ,  $g(x) \rightarrow \infty$

b)  $\lim_{x \rightarrow 0} g(x) = 0$

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b)  $\lim_{x \rightarrow 2} g(x) = 0$

16)  $\lim_{y \rightarrow 4} 3|y-1| = 9$  no table needed

18)  $\lim_{t \rightarrow 3} \frac{t^2 - 9}{t - 3} = 6$  need table

20)  $\lim_{x \rightarrow 0} \frac{\sqrt{4+x} - 2}{x} = \frac{1}{4}$  need table

22)  $\lim_{s \rightarrow 0} \frac{(1/\sqrt{1+s}) - 1}{s} = \frac{1}{2}$  need table

24)  $\lim_{x \rightarrow -2} \frac{x^2 - 4}{x^3 + 8} = -\frac{1}{3}$  need table

26)  $\lim_{x \rightarrow \pi/4} \frac{4x}{\tan x} = \pi$  can use table, but shouldn't need it

30)  $\lim_{x \rightarrow 2} \frac{\ln(x-1)^2}{\ln(x-1)} = 2$  need table; tricky to put into calculator

$$\ln((x-1)^2) / \ln(x-1)$$