SELF: F-L1a Mock Assessment #1 Name:

Evaluate each limit. Show all work. If a limit does not exist, show why.

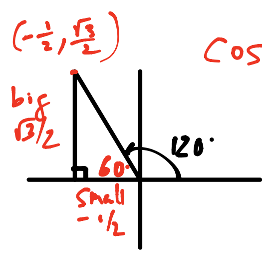
1. $\lim_{x\to -1} \frac{x^2+5x+4}{x+1} = \frac{1-5+4}{-1+1} = \frac{0}{0}$

$\lim_{x\to -1} \frac{(x+4)(x+1)}{x+1} \rightarrow \lim_{x\to -1} \frac{(x+4)\cancel{(x+1)}}{\cancel{x+1}} \rightarrow \lim_{x\to -1} x+4 = -1+4 = 3$

2. $\lim_{x\to 2} \frac{x-2}{x^2-x-2} = \frac{2-2}{4-2-2} = \frac{0}{0}$

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

3. $\lim_{x\to -1} \frac{x^2-2x}{x} = \frac{1-2\cdot -1}{-1} = \frac{1+2}{-1} = \frac{3}{-1} = -3$



SOHCAHTOA

$\cos\theta = \frac{A}{H} = \frac{-1/2}{1} = -1/2$

4. $\lim_{x\to \frac{\pi}{3}} \cos(2x) = \cos\left(\frac{2\pi}{3}\right)$

$\pi/3 = 60° \ldots$ so $2\pi/3 = 120°$

SELF: F-L1c

5. $\lim_{x\to 3} \frac{\sqrt{x+1}-2}{3-x} = \frac{2-2}{0} = \frac{0}{0}$

$\lim_{x\to 3} \frac{(\sqrt{x+1}-2)}{3-x} \cdot \frac{(\sqrt{x+1}+2)}{\sqrt{x+1}+2}$

"Foil" Distribute

$\lim_{x\to 3} \frac{x+1-4}{(3-x)(\sqrt{x+1}+2)}$

$\lim_{x\to 3} \frac{x-3}{(3-x)(\sqrt{x+1}+2)}$

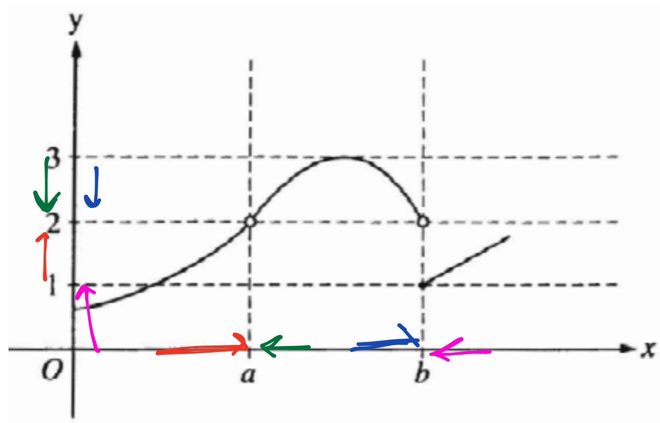
$\lim_{x\to 3} \frac{-1\cancel{(3-x)}}{\cancel{(3-x)}(\sqrt{x+1}+2)}$

$\lim_{x\to 3} \frac{-1}{\sqrt{x+1}+2} = \frac{-1}{\sqrt{3+1}+2} = \frac{-1}{2+2} = -\frac{1}{4}$

SELF: F-L2a

Use the graph of f(x) shown here for #5-9.

Tell whether each is true or false. If false, explain why.



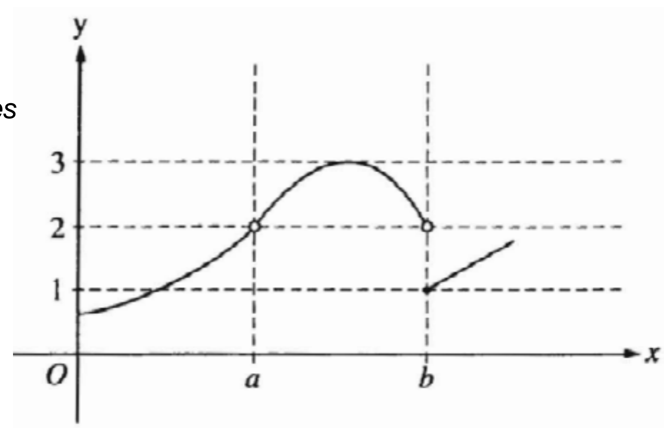
6. $\lim_{x\to a} f(x) = \lim_{x\to b} f(x)$ *False. The limit at a is 2 and the limit at b does not exist because 2=/=1*

   2 dne

7. $\lim_{x\to a} f(x) = 2$ *True*

8. $\lim_{x\to b} f(x) = 2$ *False. From the left of b, f approaches 2 and from the right of b f approaches 1.*

9. $\lim_{x\to b} f(x) = 1$ *False. While f(b)=1, the limit does not exist.*



10. $\lim_{x\to a} f(x)$ does not exist

False. From the right of a, f approaches 2. From the left of a, f approaches 2. Since 2=2, the limit exists.