Quiz 2 Corrections — Makray M.

2) good

3) Work out problems | Ex. 29+30

4) Examples 27, 28, 31, 34

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1) a) $\lim_{x \to 0^+} f(x) = 2$

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

c) $\lim_{x \to 2^+} f(x) = 4$

3) $\lim_{x \to 16} \frac{\sqrt{x} - \sqrt{16}}{x - 16} = \lim_{x \to 16} \left(\frac{\sqrt{x} - \sqrt{16}}{(\sqrt{x} + \sqrt{16}) \cdot (x + \sqrt{16})} \right)$

$\rightarrow \lim_{x \to 16} \left(\frac{1}{\sqrt{x} + \sqrt{16}} \right) \rightarrow \lim_{x \to 16} \left(\frac{1}{\sqrt{16} + \sqrt{16}} \right) \rightarrow \frac{\sqrt{16}}{12}$

$\rightarrow \frac{\sqrt{16}}{12} = \boxed{.204}$

4) $f(x) = \begin{cases} 2 - \frac{1}{2}x & \text{if } x < 3 \\ \frac{x^2 - 5x + 16}{x^2 - 8x + 15} & \text{if } x \geq 3 \end{cases}$

find

$\lim_{x \to 3^-}$ | $\lim_{x \to 3^+}$

-2 3 | 15 -5 3

$\lim_{x \to 3^-}$ (left) / $\lim_{x \to 3^+}$ (right)

- $\frac{x^2-5x+6}{x^2-8x+15} \to \frac{(x-2)(x-3)}{(x-5)(x-3)} = \frac{x-2}{x-5}$

$\to \frac{-3-2}{-3-5} = \frac{-5}{-8} = \frac{5}{8}$

$\to \frac{3-2}{3-5} = \frac{1}{-2} = \frac{-1}{2}$

- limit DNE

$\lim_{x \to 3^-} = \frac{5}{8} \neq \lim_{x \to 3^+} = \frac{-1}{2}$

$\lim_{x \to 3}$ DNE