

Limit Review Sheet Answers

① 8 (no where to plug in x)

② π (nowhere to plug in x)

③ d (nowhere to plug in x)

All of these are lines of fixed height

④ 5

⑤ $\frac{4-4}{4^2-16} = \frac{0}{0} \Rightarrow$ Factor $\frac{\cancel{x-4}}{(x+4)(\cancel{x-4})} = \frac{1}{x+4} = \frac{1}{4+4} = \frac{1}{8}$

⑥ $\frac{5^3-125}{5-5} = \frac{0}{0} \Rightarrow$ Factor $\frac{\cancel{x-5}(x^2+5x+25)}{\cancel{x-5}} = x^2+5x+25 \rightarrow 5^2+5(5)+25 = 75$

⑦ $\frac{4x}{x-2} \quad \frac{4(2)}{2-2} = \frac{8}{0}$ undefined

Try again 2^+ \Rightarrow try 2.001

$\frac{4(2.001)}{2.001-2} = \frac{8}{.001} \approx 8000 \rightarrow \infty$

⑧ $\frac{x^2}{x} \rightarrow x \rightarrow -\infty$

⑨ $\frac{4x+7}{10+3x} \rightarrow \frac{4x}{3x} \rightarrow \frac{4}{3}$

$$\textcircled{10} \quad \frac{2x^2}{x^4 - 16}$$

$$\frac{2x^2}{x^4} \leftarrow \text{Higher} \rightarrow \textcircled{0}$$

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$$\frac{\sqrt{625x^6}}{5x^3}$$

$$\rightarrow \frac{\sqrt{625} \sqrt{x^6}}{5x^3} \rightarrow \frac{25 x^{6/2}}{5x^3} \rightarrow \frac{25x^3}{5x^3} = \textcircled{5}$$

$$\textcircled{12} \quad -3x^7 + 2x^4 - 16 \rightarrow -3(-\infty)^7 \rightarrow -3(-\infty) = \textcircled{\infty}$$

$$\textcircled{13} \quad \frac{\sqrt[3]{27 - 8x^4}}{2x}$$

$$\rightarrow \frac{\sqrt[3]{-8} \sqrt[3]{x^4}}{2x} \rightarrow \frac{-2 x^{4/3}}{2x} \leftarrow \text{Higher}$$

$$-2(\infty)^{4/3} = \textcircled{-\infty}$$

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$$\textcircled{2}$$