Calculus (1) Solution of Quiz (1) 14. 10. 2014

Question: Find

① $$\lim_{x\to 1^+} \frac{x^2+1}{x-1} = \boxed{\frac{2}{0}}^{?} = \infty$$

$x-1=0$

$x=1$

$$\underset{1}{- - - \;\times\; + + +}$$

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

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③ $$\lim_{x\to 1} \frac{x-\sqrt{2-x}}{x-1} = \frac{0}{0} \times$$

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

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

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

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

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④ $$\lim_{x\to 0^-} \frac{3}{x^4} = \boxed{\frac{3}{0}}^{?} = \infty$$

$$\underset{0}{+ + + \;\times\; + +}$$