

$$1. \lim_{x \rightarrow 3} \frac{x^2+5}{x^3-3} = \frac{14}{24} = \frac{7}{12}.$$

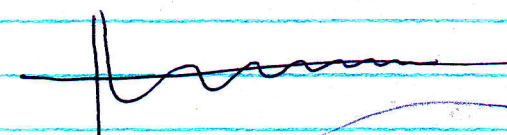
$$2. \lim_{x \rightarrow \infty} \frac{3x^3+2x}{x^3-10x^2+4} = 3 \quad \checkmark$$

$$3. \lim_{x \rightarrow 6} \frac{x^2-36}{x-6} = \frac{(x+6)(x-6)}{(x-6)} = 12.$$

$$4. \lim_{x \rightarrow 0} \frac{x^2+2x}{3x-2x^2} = \frac{x(x+2)}{x(3-2x)} = \frac{x+2}{3-2x} = \frac{2}{3} \quad \checkmark$$

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

$$6. \lim_{x \rightarrow 1} \frac{x-1}{x^2-2x+1} = \frac{(x-1)}{(x-1)(x-1)} = \frac{1}{(x-1)} \xrightarrow{x \rightarrow 1} \frac{1}{0} = \pm \infty \quad \checkmark$$

$$7. \lim_{x \rightarrow \infty} \frac{\sin x}{x} = 0.$$


$$8. \lim_{x \rightarrow 1} \frac{\sqrt{x}-1}{x} = 0. \quad \checkmark$$

$$9. \lim_{x \rightarrow 0^+} \frac{\sqrt{x}-1}{x-1} = 1$$

$$10. \lim_{x \rightarrow 1} \frac{x^2+5}{x-1} = \infty \quad \checkmark$$

$$11. \lim_{x \rightarrow 1} \frac{x^2+5}{(x-1)^2} = \frac{x^2+5}{x^2-2x+1} = 1.$$

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