

$$5) \frac{1}{x+1} \cdot \frac{x^2-2x+4}{x^3+8} = \frac{x^2-2x+4-12}{x^3+8} = \frac{x^2-2x-8}{x^3+8}$$

$$= \frac{(x-4)(x+2)}{(x+2)(x^2-2x+4)} = \frac{x-4}{x^2-2x+4}$$

$$\lim_{x \rightarrow -2} \frac{x-4}{x^2-2x+4} = \frac{-6}{4+4+4} = -\frac{1}{2}$$

$$6) \lim_{x \rightarrow 0} \frac{\sin 3x}{x^5} = \lim_{x \rightarrow 0} \left(\frac{\sin 3x}{x} \right)^3 =$$

$$\lim_{x \rightarrow 0} \left(\frac{1}{3} \cdot \frac{\sin 3x}{3x} \right)^3 = \frac{1}{27} \lim_{x \rightarrow 0} \left(\frac{\sin 3x}{3x} \right)^3 = \frac{1}{27} \cdot 1 =$$

$$= \frac{1}{27}$$

$$7) \lim_{x \rightarrow 5} \frac{25-x^2}{x^2-8x+15} = \lim_{x \rightarrow 5} \frac{(5-x)(5+x)}{(x-5)(x-3)} =$$

$$= -\lim_{x \rightarrow 5} \frac{x+5}{x-3} = -\lim_{x \rightarrow 5} \frac{x+5}{x-3} = -\frac{10}{2} =$$

$$= -5$$