1. $\lim_{x\to 2} \dfrac{x-2}{x^2-4} = \lim_{x\to 2} \dfrac{1}{2x} = \dfrac{1}{4}$
2. $\lim_{x\to -1} \dfrac{x^6-1}{x^4-1} = \lim_{x\to -1} \dfrac{6x^5}{4x^3} = \lim_{x\to -1} \dfrac{3x^2}{2} = \dfrac{3}{2}$
3. $\lim_{x\to 4} \dfrac{\sqrt{x}-2}{x-4} = \lim_{x\to 4} \dfrac{\frac{1}{2\sqrt{x}}}{1} = \dfrac{1}{4}$
4. $\lim_{x\to 0} \dfrac{\sin x}{x^3} = \lim_{x\to 0} \dfrac{\cos x}{x} \not\exists$ (constant over zero)
5. $\lim_{x\to 0} \dfrac{\tan x}{x+\sin x} = \lim_{x\to 0} \dfrac{\sec^2 x}{1+\cos x} = \dfrac{1}{2}$
6. $\lim_{t\to 9} \dfrac{9-t}{3-\sqrt{t}} = \lim_{t\to 9} \dfrac{-1}{-\frac{1}{2\sqrt{t}}} = 6$
7. $\lim_{x\to 0} \dfrac{1-\cos x}{x^2} = \lim_{x\to 0} \dfrac{\sin x}{2x} = \lim_{x\to 0} \dfrac{\cos x}{2} = \dfrac{1}{2}$ (Used the rule twice.)
8. $\lim_{x\to 0} \dfrac{x+\sin 3x}{x-\sin 3x} = \lim_{x\to 0} \dfrac{1+3\cos 3x}{1-3\cos 3x} = -2$
9. $\lim_{x\to 9} \dfrac{x^2-81}{\sqrt{x}-3} = \lim_{x\to 9} \dfrac{2x}{\frac{1}{2\sqrt{x}}} = 108$
10. $\lim_{t\to 0} \dfrac{\sqrt{2-t}-\sqrt{2}}{t} = \lim_{t\to 0} \dfrac{-\frac{1}{2\sqrt{2-t}}}{1} = -\dfrac{1}{2\sqrt{2}}$
11. $\lim_{x\to -3} \dfrac{x^2-x-12}{x+3} = \lim_{x\to -3} \dfrac{2x-1}{1} = -7$