

$$\textcircled{2} \lim_{x \rightarrow 3} \frac{x^2 - 8x + 15}{x^2 - 2x - 3} = \lim_{x \rightarrow 3} \frac{(x-3)(x-5)}{(x-3)(x+1)} = \lim_{x \rightarrow 3} \frac{x-5}{x+1} = \frac{3-5}{3+1} = \boxed{\frac{-1}{2}}$$

$$\textcircled{4} \lim_{x \rightarrow 1} \frac{\frac{1}{x} - 1}{x-1} = \lim_{x \rightarrow 1} \frac{\frac{1}{x} - 1}{x-1} \cdot \frac{x}{x} = \lim_{x \rightarrow 1} \frac{1-x}{(x-1)x}$$


$$= \lim_{x \rightarrow 1} \frac{-(x-1)}{(x-1)x} = \lim_{x \rightarrow 1} \frac{-1}{x} = \frac{-1}{1} = \boxed{-1}$$

$$\textcircled{24} \lim_{x \rightarrow 3} \frac{\sqrt{x} - \sqrt{3}}{x-3} = \lim_{x \rightarrow 3} \frac{\sqrt{x} - \sqrt{3}}{x-3} \cdot \frac{\sqrt{x} + \sqrt{3}}{\sqrt{x} + \sqrt{3}} = \lim_{x \rightarrow 3} \frac{x-3}{(x-3)(\sqrt{x} + \sqrt{3})}$$

$$= \lim_{x \rightarrow 3} \frac{1}{\sqrt{x} + \sqrt{3}} = \frac{1}{\sqrt{3} + \sqrt{3}} = \boxed{\frac{1}{2\sqrt{3}}}$$

$$\textcircled{30} \lim_{x \rightarrow 3^+} \frac{-x^2 - 2x + 15}{|-x + 3|} = \lim_{x \rightarrow 3^+} \frac{(-x+3)(x+5)}{-(-x+3)}$$

$$= \lim_{x \rightarrow 3^+} -(x+5) = \boxed{-8}$$


  
 Note: when  $x > 3$ ,  $-x+3$  is negative, so  $|-x+3| = -(-x+3)$

$$\textcircled{32} \lim_{x \rightarrow 3^-} \frac{-x^2 + x + 6}{-x + 3} = \lim_{x \rightarrow 3^-} \frac{(-x+3)(x+2)}{-x+3}$$

$$= \lim_{x \rightarrow 3^-} (x+2) = 3+2 = \boxed{5}$$