1. $\lim_{x \to -3} \sqrt{-x+1} = \sqrt{--3+1} = \sqrt{4} = \boxed{2}$

2. $\lim_{x \to 3} -x^2 + 6x - 11 = -9 + 18 - 11 = \boxed{-2}$

3. $\lim_{x \to 2} -\sqrt{2x+5} = -\sqrt{2(2)+5} = -\sqrt{9} = \boxed{-3}$

4. $\lim_{x \to -1} \sqrt{-x+4} = \sqrt{-1+4} = \sqrt{1+4} = \boxed{\sqrt{5}}$

5. $\lim_{x \to 1} \frac{5|x-1|}{x-1}$ rewrite as p.wise: $x-1>0$

$x>1$

$$\begin{cases} \frac{5(x-1)}{x-1} \to 5, & x>1 \\ \frac{5(-1)(x-1)}{(x-1)} = -5, & x<1 \end{cases}$$

$\lim_{x \to 1^-} f(x) = -5$ $\quad \lim_{x \to 1^+} f(x) = 5$

$-5 \neq 5$, so $\lim_{x \to 1} f$ $\boxed{\text{d.n.e.}}$

6. $\lim_{x\to 1} f(x)$, $f(x) = \begin{cases} -2x+1, & x \le 1 \\ -x+1, & x > 1 \end{cases}$

$\lim_{x\to 1^-} -2x+1 = -2+1 = -1$

$\lim_{x\to 1^+} -x+1 = -1+1 = 0$

$-1 \neq 0$ so $\lim_{x\to 1} f(x)$ **d.n.e.**

7. $\lim_{x\to 0^-} f(x)$, $f(x) = \begin{cases} -x+1, & x < 0 \\ 2x-5, & x \ge 0 \end{cases}$

$\lim_{x\to 0^-} -x+1 = 0+1 = \boxed{1}$

8. $\lim_{x\to 2} f(x)$, $f(x) = \begin{cases} -x^2-1, & x < 2 \\ \frac{x}{2} - \frac{3}{2}, & x \ge 2 \end{cases}$

$\lim_{x\to 2^-} -x^2-1 = -4-1 = -5$

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

$-5 \neq -\frac{1}{2}$ so $\lim_{x\to 2} f$ **d.n.e.**

9. $\lim_{t \to -3} h(t) = \begin{cases} -t^2 - 10t - 22, & t \neq -3 \\ -2 & t = -3 \end{cases}$ $\lim_{t \to -3} -t^2 - 10t - 22$

$-9 + 30 - 22 = \boxed{-1}$

10. $\lim_{t \to -3} f(t)$, $f(t) = \begin{cases} -t - 2, & t \neq -3 \\ 4 & t = -3 \end{cases}$ $\lim_{t \to -3} -t - 2 = 3 - 2 = \boxed{1}$

11. $\lim_{r \to 2} \frac{r-2}{r^2-4} = \frac{0}{0}$? $\lim_{r \to 2} \frac{\cancel{r-2}}{(\cancel{r-2})(r+2)} = \lim_{r \to 2} \frac{1}{r+2} = \frac{1}{2+2} = \boxed{\frac{1}{4}}$

12. $\lim_{x \to 0} g(x)$, $g(x) = \begin{cases} x^2 - 4x + 1, & x \neq 0 \\ -3 & , x = 0 \end{cases}$ $\lim_{x \to 0} x^2 - 4x + 1 = 0^2 - 4(0) + 1 =$

$\boxed{1}$

13. $\lim_{s \to -2} h(s)$, $h(s) = \begin{cases} s+1, & s \neq -2 \\ -4, & s = -2 \end{cases}$ $\lim_{s \to -2} s + 1 =$

$-2 + 1 = \boxed{-1}$

14. $\lim_{x \to 2} h(x)$, $h(x) = \begin{cases} 2 + \frac{x}{2}, & x \neq 2 \\ 5 & , x = 2 \end{cases}$ $\lim_{x \to 2} 2 + \frac{x}{2} = 2 + \frac{\cancel{2}}{\cancel{2}}^{1}$

$\boxed{3}$

15. $\lim_{x\to 2} \frac{x+2}{x^2-4x+4} = \frac{4}{0}$?? $\lim_{x\to 2} \frac{x+2}{(x-2)^2}$

$\lim_{x\to 2^-} \frac{x+2}{(x-2)^2} = \frac{2^-+2}{(2^--2)^2} = \frac{4^-}{(0^-)^2} = \frac{4^-}{0^+} = \infty$; $\lim_{x\to 2^+} \frac{x+2}{(x-2)^2} = \frac{4^+}{(2^+-2)^2} \to \frac{4^+}{(0^+)^2} \to \frac{4^+}{0^+} = \infty$

So $\lim_{x\to 2} f = \boxed{\infty}$

16. $\lim_{x\to -1^+} \frac{-x}{x+1} = \frac{-(-1^+)}{-1^+ + 1} = \frac{1^-}{0^+}$ $\frac{\text{pos}}{\text{pos}} = \boxed{\infty}$

17. $\lim_{x\to -1^+} \frac{x-1}{x^2+2x+1} = \frac{0}{0}$? $\lim_{x\to -1^+} \frac{x-1}{(x+1)^2} = \frac{-1^+-1}{(-1^++1)^2} = \frac{-2}{(0^+)^2} = \frac{-2}{0^+}$ $\frac{\text{neg}}{\text{pos}}$ $\boxed{-\infty}$

18. $\lim_{x\to 3^-} \frac{-3}{x-3} = \frac{-3}{3^--3} = \frac{-3}{0^-}$ $\frac{\text{neg}}{\text{neg}} = \boxed{\infty}$

19. $\lim_{x\to \infty} \frac{-x^3}{3x^2-3} = \frac{-\infty^3}{3\infty^2} = \boxed{-\infty}$

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

21. $\boxed{\infty}$

22. (omit)