Test learning Re Assessment for limits

Question 1)

1) $\lim_{x \to 5} \frac{x-5}{\sqrt{x+31}-6} \cdot \frac{\sqrt{x+31}+6}{\sqrt{x+31}+6} = \frac{12}{1} = \boxed{12}$

As x approaches 5, the limit will be $\boxed{12}$.

2) $\lim_{x \to -1} \frac{x^2-4x-5}{x^2-1} = \frac{0}{0}$

so break down

$$\frac{x^2-5x+1x-5}{x^2-1} = \frac{x(x-5)\,1(x-5)}{(x+1)(x-1)} = \frac{(x+1)(x-5)}{(x+1)(x-1)}$$

$$\lim_{x \to -1} \frac{(-1-5)}{(-1-1)} = \frac{-6}{-2} = \frac{3}{1} = \boxed{3}$$

as x approaches -1, the limit is $\boxed{3}$.

3) $\lim_{x \to 6} \frac{x^2-2x-3}{x^2+10x+24} = \frac{21}{120} = \frac{7}{40}$.

as x approaches 6, the limit is $\boxed{\frac{7}{40}}$.