(28) $\lim\limits_{n\to+\infty} \left(\sqrt{n^2+8n-5} - n\right)$ $\qquad$ $\infty - \infty$ is an indeterminate form

Multiply by the conjugate

$$\lim_{n\to+\infty} \left(\sqrt{n^2+8n-5} - n\right) \cdot \frac{\left(\sqrt{n^2+8n-5}+n\right)}{\left(\sqrt{n^2+8n-5}+n\right)}$$

$$= \lim_{n\to+\infty} \frac{\cancel{n^2}+8n-5-\cancel{n^2}}{\sqrt{n^2+8n-5}+n} = \lim_{n\to+\infty} \frac{8n-5}{\sqrt{n^2+8n-5}+n}$$

Now divide by $\sqrt{n^2}=n$ (if $n>0$)

$$= \lim_{n\to+\infty} \frac{8-\cancel{\frac{5}{n}}^{\to 0}}{\sqrt{1+\cancel{\frac{8}{n}}^{\to 0}-\cancel{\frac{5}{n^2}}^{\to 0}}+1} = \frac{8}{\sqrt{1}+1} = 4$$

So sequence converges to 4.