

$$\lim_{x \rightarrow \infty} \frac{\sqrt{x^2 - Vx + r}}{\sqrt{x^2 - \Lambda x + r}} \xrightarrow{\text{Hop}} \frac{\Lambda x - V}{\Lambda x - \Lambda} \rightarrow \left(\frac{1}{r} \right) \quad -1$$

$$\left. \begin{array}{l} \sqrt{x-1} \rightarrow -\sqrt{x+1} \\ \sqrt{x+1} \rightarrow \sqrt{x+1} \end{array} \right\} -\sqrt{x+1} - (\sqrt{x+1}) = \frac{-4\sqrt{x+1}}{2} = \boxed{-2} \quad -2$$

$$\frac{0}{0} \xrightarrow{\text{Hop}} \frac{1}{\frac{1}{\sqrt{x}}} \rightarrow \sqrt{x} \xrightarrow{\text{باینک}} \sqrt{x} = \boxed{\sqrt{x}} \quad -3$$

$$\frac{0}{0} \xrightarrow{\text{Hop}}, \frac{1 - \frac{r}{\sqrt{x^2}}}{\sqrt{x} - 1} \xrightarrow{\text{باینک}} \frac{1 - \frac{1}{r}}{\Lambda - 1} = \frac{1}{r} \Rightarrow \boxed{\frac{1}{r}} \quad -4$$

$$\frac{0}{0} \xrightarrow{\text{Hop}}, \frac{\frac{1}{\sqrt{x}}}{-1} \xrightarrow{\text{باینک}} \frac{1}{r} \rightarrow \boxed{-r} \quad -5$$

$$\frac{0}{0} \xrightarrow{\text{Hop}} \frac{\frac{r}{\sqrt{r^2 x + r}}}{\frac{r}{\sqrt{(ax+V)^2}}} \xrightarrow{\text{باینک}} \frac{\frac{r}{\Lambda}}{\frac{a}{rV}} \rightarrow \boxed{\frac{\Lambda r}{r_0}} \quad -6$$

$$\frac{0}{0} \xrightarrow{\text{Hop}} \frac{r + \frac{1}{\sqrt{x}}}{\frac{r}{\sqrt{r^2 x + \sqrt{x}}}} \xrightarrow{\text{باینک}} \frac{\frac{V}{r}}{\frac{1}{r}} = \frac{V}{\Lambda} \Rightarrow \boxed{\frac{rV}{\Lambda}} \quad -7$$

$$\lim_{x \rightarrow \pi} \frac{1 + \cos^3 x}{\sin^2 x} = \frac{(1 + \cos(x))(1 + \cos^2(x) - \cos(x))}{\sin^2(x)(1 + \cos(x))(1 - \cos(x))} = \frac{1 + \cos^2(x) - \cos(x)}{1 - \cos(x)}$$

π باینک \downarrow
 $\frac{1+1+1}{1+1} = \boxed{\frac{3}{2}}$

$$\rightarrow \frac{1 - \frac{\sin(x)}{\cos(x)}}{\sin(x) - \cos(x)} = \frac{\cos - \sin}{\sin - \cos} = -\frac{1}{\cos(x)} \xrightarrow{\text{جابجایی}} -\frac{1}{\frac{\sqrt{2}}{2}} \rightarrow \left(-\frac{2}{\sqrt{2}}\right) \text{ یا } \left(-\sqrt{2}\right) \quad -9$$

$$\rightarrow \frac{\left(1 - \frac{1}{\cos^2}\right) - 1}{\cos^2 x} = \frac{-\frac{1}{\cos^2}}{2 \sin \cos} = -\frac{1}{2 \sin(x) \cos^2(x)} \xrightarrow{\text{جابجایی}} -\frac{1}{2 \times \frac{\sqrt{2}}{2} \times \left(\frac{\sqrt{2}}{2}\right)^2} = -\frac{1}{2 \times \frac{1}{2}} = -1 \quad -10$$

نتیجه در