We know that,

Bellmans equation

$$v_\pi(s) = \sum_a \pi(a|s) \sum_{s',r} p(s',r|s,a)\left[r + \gamma' v_\pi(s')\right]$$

Given,

final

a_{11}	a_7	a_1	1
a_{12}	a_8	a_3	a_2
a_{13}	a_9	-1	a_4
a_{14}	a_{10}	a_6	a_5

$$\Rightarrow a_1 = \left(\frac{1}{2}\right)\left(0 + \gamma(1)\right) = \frac{\gamma}{2}$$

$$\Rightarrow a_2 = \left(\frac{1}{2}\right)\left(0 + \gamma(1)\right) = \frac{\gamma}{2}$$

$$\Rightarrow a_3 = \left(\frac{1}{2}\right)\left(0 + \gamma(a_2)\right) + \left(\frac{1}{2}\right)\left(0 + \gamma(a_1)\right)$$

$$\Rightarrow a_3 = \frac{\gamma^2}{2}$$

$$\Rightarrow a_4 = \left(\frac{1}{2}\right)(0 + r a_2) + \frac{1}{24}(0 + r a(-1))$$

$$\boxed{\Rightarrow a_4 = \frac{r^2 - r}{4}}$$

$$\boxed{\Rightarrow a_5 = \frac{1}{3}(0 + r a_4) = \frac{r^3 - r^2}{12}}$$

$$\Rightarrow a_6 = \frac{1}{4}(0 + r(-1)) + \left(\frac{1}{2}\right)(0 + r(a_5))$$

$$\boxed{\Rightarrow a_6 = \frac{r^4 - r^3 - 6r}{24}}$$

$$\Rightarrow \boxed{\Rightarrow a_7 = \frac{1}{2}(0 + r a_1) = \frac{r}{2}}$$

$$\Rightarrow a_8 = \frac{1}{4}(0 + r a_3) + \frac{1}{3}(0 + r a_7)$$

$$\boxed{\Rightarrow a_8 = \frac{r^3}{8} - \frac{r^2}{6}}$$

$$\Rightarrow a_9 = \frac{1}{4}(0 + r a_8) + \frac{1}{4}(0 + r(-1))$$

$$\boxed{\Rightarrow a_9 = \frac{r^4}{32} - \frac{r^3}{24} - \frac{r}{4}}$$

$$\Rightarrow a_{10} = \frac{1}{4}(0 + r a_9) + \frac{1}{3}(0 + r a_8)$$

$$\boxed{\Rightarrow a_{10} = \frac{r^5}{128} - \frac{r^4}{96} - \frac{r^2}{16} + \frac{r^4 - r^3 - 6r}{72}}$$

$$\boxed{\Rightarrow a_{11} = \frac{r a_7}{3}}$$

$$\boxed{\Rightarrow a_{12} = \frac{r a_{11}}{2} + \frac{r a_8}{4}}$$

$$\boxed{\Rightarrow a_{13} = \frac{r a_{12}}{2} + \frac{r a_7}{4}}$$

$$\boxed{\Rightarrow a_{14} = \frac{r a_{13}}{2} + \frac{r a_{10}}{3}}$$