

$$2) \left(\frac{\sqrt{1+\sqrt{r}}}{\sqrt{1+\sqrt{r}}} \right)^r = \frac{\left(\frac{1+\sqrt{r}}{1+\sqrt{r}} \right)^r}{\left(\frac{1+\sqrt{r}}{1+\sqrt{r}} \right)^r} = \frac{1}{1} = 1$$

$$3) \frac{\sqrt{r+\sqrt{r}}}{\sqrt{r}(\sqrt{r}+\sqrt{r})} = \frac{1}{\sqrt{r}}$$

$$4) \left(\frac{\sqrt{r+\sqrt{r}} - \sqrt{r+\sqrt{r}}}{\sqrt{r}(\sqrt{r}+\sqrt{r})} \right)^r = \frac{0}{\sqrt{r}(\sqrt{r}+\sqrt{r})} = 0$$

$$\text{Sol)} \frac{14\sqrt{p+1}\sqrt{p}}{2-\sqrt{p}} \times \frac{2+\sqrt{p}}{2+\sqrt{p}} = \frac{(14\sqrt{p+1}\sqrt{p})(2+\sqrt{p})}{19} = \frac{19(\sqrt{p+1}\sqrt{p})}{19} = \sqrt{p+1}\sqrt{p}$$

$$1(\sqrt{p}-1)^{-1} = \frac{1}{\sqrt{p}-1} \times \frac{\sqrt{p}+1}{\sqrt{p}+1} = \frac{1(\sqrt{p}+1)}{p} = \sqrt{p}+1$$

$$\Rightarrow (\sqrt{p}+\sqrt{p}) - (\sqrt{p}+1) = \boxed{\sqrt{p}-1}$$

$$\Rightarrow \frac{14\sqrt{p}-1}{p+\sqrt{p}} \times \frac{p-\sqrt{p}}{p-\sqrt{p}} = \frac{(14\sqrt{p}-1)(p-\sqrt{p})}{19} = \frac{19(\sqrt{p}-1)}{19}$$

$$(1-\sqrt{p})^{-1} = \frac{1}{1-\sqrt{p}} \times \frac{1+\sqrt{p}}{1+\sqrt{p}} = \frac{1+\sqrt{p}}{1-(p)} = \sqrt{p}-1 + (1+\sqrt{p}) = \boxed{1+\sqrt{p}}$$

$$\sqrt{1+\sqrt{p}} = \sqrt{\frac{p}{p}} + \sqrt{\frac{1}{p}} > \sqrt{p-1} = \sqrt{\frac{p}{p}} - \sqrt{\frac{1}{p}} \\ = \sqrt{\frac{p}{p} + \frac{1}{p}} + \left(\sqrt{\frac{p}{p}} - \sqrt{\frac{1}{p}}\right) = 1\sqrt{\frac{p}{p}} = \sqrt{p}$$

$$\sqrt{p} \times \frac{1}{\sqrt{p}-\sqrt{p}} \Rightarrow \sqrt{p+1} = \sqrt{\frac{p}{p}} - \sqrt{\frac{1}{p}} = \frac{\sqrt{p}-\sqrt{1}}{\sqrt{p}} \Rightarrow \frac{\sqrt{p}}{\sqrt{p}-\sqrt{1}} = \sqrt{p}$$

$$\frac{14\sqrt{p}}{\sqrt{p}-\sqrt{p}} \times \frac{\sqrt{p}+\sqrt{p}}{\sqrt{p}+\sqrt{p}} = \frac{(14\sqrt{p})(\sqrt{p}+\sqrt{p})}{1} = 14+14\sqrt{p} - 1 = \boxed{13+14\sqrt{p}}$$

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$$\sqrt{\frac{p}{p}} = 1 \times \frac{1}{1} > \sqrt{1+p} = \sqrt{\frac{p}{p} + \frac{1}{p}} = \sqrt{p} + \sqrt{p}$$

$$\sqrt{1+\sqrt{p}} = 1 \times \sqrt{p} = 1 \times \sqrt{p} \times \frac{1}{\sqrt{p}} \Rightarrow 1 \times \sqrt{p} \times \left(\sqrt{p} \times \frac{1}{\sqrt{p}}\right) \times \left(\sqrt{p} \times \frac{1}{\sqrt{p}}\right) \\ = \boxed{p}$$

