

$$(a^2 + b^2 + ab)^t (a^2 + b^2 + ab)^t = 6(1 - \sqrt{2})$$

$$(a^2 + b^2)^t$$

$$\frac{(a-b)^t}{(a+b)^t} = \frac{(a+b)^t}{(a-b)^t} \Rightarrow (\sqrt{2}-1)^t = (\sqrt{2}+1)^t$$

$$21 - 14\sqrt{2} \rightarrow 6(1 - \sqrt{2}) = 21 - 14\sqrt{2} \rightarrow t = 14$$

$$(a + \frac{1}{a} + \sqrt{2})^t (a + \frac{1}{a} - \sqrt{2})^t = 1 \rightarrow ((a + \frac{1}{a})^t - 1)^t = a^t + \frac{1}{a^t} = 2$$

$$\Rightarrow \sqrt{2} + \sqrt{2} = \frac{1}{\sqrt{2} + \sqrt{2}} \rightarrow t = 14 - 4\sqrt{2} + \frac{\sqrt{2} + \sqrt{2}}{2 - 2} = 12$$

$$t = 12 \rightarrow t = 6$$

$$A = \sqrt{2} + \sqrt{12} \left(\frac{1}{r}\right)^{-\frac{1}{r}} = r^{\frac{1}{10}} \times (r^{-1})^{-\frac{1}{r}} = r^{\frac{1}{10}} \times r^{\frac{1}{r}}$$

$$\sqrt[10]{r^r \times 12} = \sqrt[10]{r^{11}} = r^{\frac{11}{10}}$$

$$r^{\frac{1}{10}} = r = 10$$

$$(rA)^{-\frac{1}{r}} = (r \times r)^{-\frac{1}{r}} = (r^2)^{-\frac{1}{r}} = r^{-2} = \frac{1}{r^2}$$

$$a) \rightarrow \sqrt[10]{a} = \sqrt[10]{a^{\frac{10}{r}}} \rightarrow a^{\frac{1}{r}} = r \times \sqrt[10]{a^{\frac{10}{r}}} \rightarrow rV = a^{\frac{1}{r}} = a^{\frac{1}{r}}$$

$$\frac{(\frac{1}{a} - r)}{1 + \sqrt{r}} = \frac{r\sqrt{r} - r}{1 + \sqrt{r}} = \frac{r(\sqrt{r} - 1)(\sqrt{r} + 1)}{1 + \sqrt{r}(\sqrt{r} + 1)} = \frac{9 + r - 9\sqrt{r}}{r}$$

$$\frac{12 - 9\sqrt{r}}{r} = \frac{r(4 - 3\sqrt{r})}{r} = 4 - 3\sqrt{r}$$

$$\Rightarrow \frac{1}{ar} = rV \rightarrow rVA^{\frac{1}{r}} = a^{\frac{1}{r}} \rightarrow a^{\frac{1}{r}} = \frac{1}{rV} \rightarrow a = \frac{1}{r^{\frac{1}{r}}}$$

$$\sqrt{m+a} - \sqrt{n-r} = r \rightarrow m-n=r$$

$$m^2 - n^2 = m + a - n + r = a + r$$

$$(m+n)(m-n) = a+r \rightarrow m+n = \frac{a+r}{r}$$

$$\sqrt{m+a} + \sqrt{n-r} = r \rightarrow m+n = r = \frac{a+r}{r} - \frac{r}{r} = \frac{a}{r}$$