

$$((a-b)^r)^r ((a+b)^r)^r = [(a-b)(a+b)]^r$$

$$a = \sqrt[3]{\sqrt{4-r}} \rightarrow \sqrt[3]{\sqrt{4-r}} = \sqrt[3]{\sqrt{4-r}} \quad (\sqrt{4-r} - \sqrt{4+r})^r$$

$$b = \sqrt[3]{\sqrt{4+r}} \rightarrow \sqrt[3]{\sqrt{4+r}} = \sqrt[3]{\sqrt{4+r}} \quad \sqrt{4-r} + \sqrt{4+r} = r \sqrt{\frac{(\sqrt{4-r})(\sqrt{4+r})}{r}}$$

$$3r - 14\sqrt{r} = r(r - \sqrt{r})$$

$$14(r - \sqrt{r}) = r(r - \sqrt{r}) \rightarrow r = 14$$

Ⓟ ✓

$$a = \sqrt[3]{(r - \sqrt{r})^r} = \sqrt[3]{r - \sqrt{r}}$$

$$(a + \frac{1}{a} + \sqrt{r})^r (a + \frac{1}{a} - \sqrt{r})^r = [(a + \frac{1}{a} + \sqrt{r})(a + \frac{1}{a} - \sqrt{r})]^r = r^r$$

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

$$a^r = |r - \sqrt{r}| = r - \sqrt{r}$$

$$\frac{1}{a^r} = \frac{1}{r - \sqrt{r}} \times \frac{r + \sqrt{r}}{r + \sqrt{r}} = \frac{r + \sqrt{r}}{1} = r + \sqrt{r}$$

Ⓟ ✓

$$A = \sqrt[10]{r^k \times r^q} = \sqrt[10]{r^{10}} = r$$

$$(\frac{1}{r})^{-\frac{k}{10}} = (r)^{\frac{k}{10}} = \sqrt[10]{r^k}$$

$$\sqrt[10]{r^k \times r^q} = \sqrt[10]{r^{10}} = r^1 = r = A$$

$$(rA)^{-\frac{1}{10}} = (r)^{-\frac{1}{10}} = \sqrt[10]{\frac{1}{r}} = \frac{1}{r}$$

Ⓟ ✓

$$\sqrt[9]{a} = r \times a^{\frac{1}{9}}$$

$$a^{\frac{1}{9}} = r \times a^{\frac{1}{9}} \rightarrow 1 = r \times a^{\frac{1}{9}} \rightarrow a^{\frac{1}{9}} = \frac{1}{r} \rightarrow a = \frac{1}{r^9} \rightarrow a = \frac{1}{r^9} \times \frac{\sqrt{r}}{\sqrt{r}} = \frac{\sqrt{r}}{r^9}$$

$$\frac{1}{a} \rightarrow \frac{9}{\sqrt{r}} \times \frac{\sqrt{r}}{\sqrt{r}} = \frac{9\sqrt{r}}{r} = 3\sqrt{r}$$

$$\frac{1}{a} - r = \frac{3\sqrt{r} - r}{1 + \sqrt{r}} \times \frac{1 - \sqrt{r}}{1 - \sqrt{r}} = \frac{3\sqrt{r} - r - r + r\sqrt{r}}{1 - r} = \frac{4\sqrt{r} - 1r}{-r}$$

$$\boxed{4 - 4\sqrt{r}} = \frac{r(4\sqrt{r} - 4)}{-r}$$

Ⓟ ✓

$$(\sqrt{x+a} - \sqrt{x-r})(\sqrt{x+a} + \sqrt{x-r}) = x+a - x+r$$

$$\hookrightarrow \frac{r+a}{r} = r + \frac{a}{r} \rightarrow \boxed{\frac{a}{r}}$$

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