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$$x=1 \rightarrow 1 = r^{A+B}$$

$$x=r \rightarrow r = r^{rA+B}$$

$$A+B=0$$

$$rA+B=r$$

$$rA=r \rightarrow A=1, B=-1$$

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

$$\log_r (r^x + 10) = x+r \Rightarrow r^{x+r} = r^x + 10 \Rightarrow r^{rx} - r^{x+r} + 10 = 0$$

$$(r^x)^r - r \times r^x + 10 = 0 \rightarrow rx = t \rightarrow t^r - r t + 10 = 0 \rightarrow (t-r)(t-0) = 0$$

$$t=r \rightarrow r^x = r \rightarrow x = \log_r r$$

$$t=0 \rightarrow r^x = 0 \rightarrow x = \log_r 0$$

$$\log_r r + \log_r 0 = \log_r 10$$

$$(\log_r r)^r + (\log_r r + \log_r r) (\log_r r + r \log_r r) \rightarrow \log_r r = 1 - \log_r r$$

$$(\log_r r)^r + (r - \log_r r) (r + \log_r r) \rightarrow (\log_r r)^r + r - (\log_r r)^r = r$$

$$\log (1-x)^r + r \log 1-x = 2 \quad 2 \log (1-x) = 2 \rightarrow \log (1-x) = 1 \rightarrow 1-x=1, n=-9$$

$$\log_r a = r$$

$$\log_r x^{r+rx+2} + \log_r x^{-r} \rightarrow \log_r x^{r-1} = r$$

$$x^r - 1 = 1 \rightarrow x^r = 19 \rightarrow x = \sqrt[r]{19}$$

$$\log \frac{\sqrt{14}}{\sqrt{r}} = \frac{\frac{r}{r}}{\frac{1}{r}} = r$$

$$\log_r 1-x - \log_r (r-x)^{-r} = r \rightarrow r \log_r 1-x = r \rightarrow \log_r 1-x = 1 \quad r-x=1 \rightarrow x=-n$$

$$\log_r 1 = \frac{r}{\frac{1}{r}} = r$$

$$r x^{r-1} = r^{2n} \quad x^{r-2n-1} = \dots \rightarrow (x-r)^r = 4 \rightarrow x-r = \sqrt{4} \rightarrow x = r + \sqrt{4}$$

$$x-r = -\sqrt{4} \rightarrow x = r - \sqrt{4}$$

$$\log \frac{r+\sqrt{4}-r}{4} = \log \frac{\sqrt{4}}{4} = \frac{1}{r}$$

$$\log_r a = \frac{\log_r a}{\log_r r} = \frac{r}{\log_r r + \log_r r} = \frac{r}{1+r \log_r r} = \frac{r}{1+r \times \frac{1}{r}} = \frac{r}{\frac{r+1}{r}} = \frac{r^2}{r+1}$$

$$\log_r 4 = \frac{\log_r 4}{\log_r r} = \frac{\log_r r + 1}{\log_r r + r} = \frac{1+1}{1+r} = \frac{2}{r+1} = \frac{1r}{19}$$

$$\frac{1}{r} \log_r r = \frac{1}{r}$$

$$\log_r r = 1/r$$

$$x = -1 \rightarrow a \log_r - a + b \log_r = 0 \rightarrow \log_r = y \rightarrow ay - a + by = 0$$

$$\xrightarrow{\div a} y - 1 + \frac{b}{a}y = 0 \rightarrow y - \frac{b}{a}y = 1 \rightarrow 1 - \frac{b}{a} = \frac{1}{\log_r}$$



$$1 - \frac{b}{a} = \log_r^{-1} \rightarrow 1 - \frac{b}{a} = 1 + \log_r^{-1} \rightarrow \frac{b}{a} = -\log_r^{-1}$$

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