



1  $\Sigma y - r^2 x = n \rightarrow y = \frac{r}{\Sigma} x + \frac{n}{\Sigma} \rightarrow \text{bias}^2 = \frac{r}{\Sigma}$  (1)

2  $\left. \begin{aligned} \rightarrow x=1 \rightarrow \Sigma y = r+n \rightarrow y = \frac{r+n}{\Sigma} \\ \rightarrow x=1 \rightarrow y = \frac{1+m+1}{\Sigma} \Rightarrow y = \frac{m+r}{\Sigma} \end{aligned} \right\} \rightarrow \frac{r+n}{\Sigma} = \frac{m+r}{\Sigma}$

3  $\boxed{m-n=1}$

5  $y' = \frac{(rx+m)(x+r) - (x^2+mx+1)}{(x+r)^2} = \frac{rx^2 + (r+m)x + rm - x^2 - mx - 1}{(x+r)^2}$

6  $\rightarrow \frac{x^2 + rx + (rm-1)}{(x+r)^2} \xrightarrow{x=1} \frac{1+r+rm-1}{17} = \frac{r}{\Sigma}$  (2)

7  $\rightarrow \frac{r+rm}{17} = \frac{r}{\Sigma} \rightarrow \Sigma = 17 \rightarrow r\Sigma = 17m \rightarrow \boxed{m=5}$

9  $r-n=1 \rightarrow \boxed{n=1} \Rightarrow m+n = r+1 \Rightarrow \boxed{r=2}$

10  $r g'(\frac{ax}{r}) - f'(\frac{ax}{r}) = (rg - f)'(\frac{ax}{r})$  (3)

12  $\frac{rx^r}{r+\sin x} - \frac{r - \sin^2 x}{r - \sin x} = \frac{9}{r+\sin x} = \frac{(r-\sin x)(9+\sin^2 x + \sin x)}{(r-\sin x)(r+\sin x)}$

14  $\rightarrow (rg - f)(x) = \frac{(9 - 9 - \sin^2 x + \sin x)}{r+\sin x} = \frac{-\sin x(r+\sin x)}{r+\sin x}$

15  $\Rightarrow -\sin x$   
 $(+rg - f)'(x) = -\cos x \xrightarrow{x = \frac{ax}{r}} -1x + \frac{1}{r} = \frac{-1}{r} \Rightarrow ?$  (4)

18  $x > 0 \rightarrow f(x) = \frac{-1}{\sqrt{rx}} \Rightarrow g(x) = \frac{1}{x \ln x}$  (1, 1/2) (5)

19  $g'(x) \times f'(g(x)) = (f \circ g)'(x)$

20  $(f \circ g)(x) = \frac{-1}{\sqrt{\frac{r \times 1}{r \ln^2 x}}} = \frac{-1}{\frac{1}{\ln x}} = -\ln x \rightarrow (f \circ g)'(x) = -\frac{1}{x}$  (6)



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