

1.75  
3 (10)

$$\log_{abcd} X = \frac{1}{\frac{1}{a} + \frac{1}{b} + \frac{1}{c} + \frac{1}{d}} = \frac{1}{\log_a X + \log_b X + \log_c X + \log_d X} = \frac{1}{\log_{abcd} X} = \log_{abcd} X$$

(5)

$$\log_2 3 + 2 \log_4 x = x \quad \frac{\log_2 6}{\log_2 x}$$

$$\log_2 3 + \log_2 x = x \quad \frac{\log_2 6}{\log_2 x}$$

$$\log_2 3x = x \quad \frac{\log_2 6}{\log_2 x} = x \quad \frac{\frac{1}{2} \log_2 2}{\log_2 x} = x \quad 2 \log_2 2$$

$$\log_2 3x = (\log_2 x)^2 = 4$$

$$3x = 2^4 = 16 \rightarrow \boxed{x = \frac{16}{3}}$$

$\frac{2 \log_2 2}{1 + x} = 0$