2.56

32

$T_6 = T_{5+1} = \binom{8}{5} \left(\frac{1}{\sqrt[4]{x^3}}\right)^3 \cdot \left(x^{8\log x}\right)^5 = 5600$

$5600 = 56 \cdot \left(x^{-\frac{4}{3}}\right)^3 \left(x^{\log x^8}\right)^5$

$100 = x^{-16} \cdot x^{40\log x} = x^{40\log x - 16} \quad / \log$

$2 = (40\log x - 16)\log x$

$40t^2 - 16t - 2 = 0 \qquad \log x = t$

$20t^2 - 8t - 1 = 0$

$t = \frac{1}{2} \rightarrow \log x = \frac{1}{2} \rightarrow x = \sqrt{10}$

$t = -\frac{1}{10} \rightarrow \log x = -\frac{1}{10} \rightarrow x = \frac{1}{\sqrt[10]{10}}$