

4.17
21

$$64 = 2^{3n} \rightarrow \boxed{n=2}$$

$$T_{k+1} = \binom{6}{k} (2nx)^{6-k} \left(\frac{1}{2nx^2}\right)^k$$

$$x^0: 0 = 6-k-2k \rightarrow \boxed{k=2}$$

$$T_3 = \binom{6}{2} (2 \cdot 2x)^4 \left(\frac{1}{4x^2}\right)^2 = 15 \cdot 256 \cdot \frac{1}{16} = 240$$

4.21

$$2^n = 2048 \rightarrow \boxed{n=11}$$