$$\sum_{n=1}^{\infty} x^n \qquad x^1 = x = a = r \qquad x + x^2 + x^3 +$$

$$= \frac{x}{1-x} \qquad \text{if} \quad -1 < x < 1$$
$$|x| < 1$$

$$\sum_{n=1}^{\infty} 4x^n \qquad 4 \cdot x^1 = a \qquad 4x + 4x^2 + 4x^3 + 4x^4 \cdots$$
$$x = r$$

$$= \frac{4x}{1-x} \qquad -1 < x < 1$$
$$|x| < 1$$

$$\sum_{n=1}^{\infty} 4^n x^n \qquad 4^1 x^1 = a \qquad 4x + 4^2 x^2 + 4^3 x^3 + \cdots$$
$$= \sum_{n=1}^{\infty} (4x)^n \qquad\qquad 4x \qquad 4x = r$$

$$= \frac{4n}{1-4n} \qquad \frac{-1}{4} < \frac{4x}{4} < \frac{1}{4} \qquad -\frac{1}{4} < x < \frac{1}{4}$$
$$|x| < \frac{1}{4}$$

$$\sum_{n=1}^{\infty} (x+4)^n \qquad a = x+4 \qquad r = (x+4) \qquad |x+4| < 1$$

$$= \frac{x+4}{1-(x+4)} = \frac{x+4}{-x-3} \qquad \begin{array}{c} -1 < x+4 < 1 \\ -4 \quad -4 \quad -4 \end{array}$$

$$\boxed{-5 < x < -3}$$