

12.9A

$$3) \sum_{n=0}^{\infty} (-x)^n = \sum_{n=0}^{\infty} (-1)^n x^n \text{ for } -1 < x < 1$$

$$4) \sum_{n=0}^{\infty} 3(x^4)^n = \sum_{n=0}^{\infty} 3x^{4n} \text{ for } -1 < x < 1$$

$$5) \sum_{n=0}^{\infty} (x^3)^n = \sum_{n=0}^{\infty} x^{3n} \text{ for } -1 < x < 1$$

$$6) \sum_{n=0}^{\infty} (-9x^2)^n = \sum_{n=0}^{\infty} (-1)^n 9^n x^{2n} \text{ for } -\frac{1}{3} < x < \frac{1}{3}$$

$$7) \sum_{n=0}^{\infty} \left(-\frac{1}{5}\right) \left(\frac{x}{5}\right)^n = \sum_{n=0}^{\infty} \frac{-1}{5^{n+1}} x^n \text{ for } -5 < x < 5$$

$$8) \sum_{n=0}^{\infty} x(-4x)^n = \sum_{n=0}^{\infty} (-1)^n 4^n x^{n+1} \text{ for } \frac{1}{4} < x < \frac{1}{4}$$

$$|4x| < 1$$

$$9) \sum_{n=0}^{\infty} \frac{x}{9} \left(-\frac{x^2}{9}\right)^n = \sum_{n=0}^{\infty} (-1)^n \frac{1}{9^{n+1}} x^{2n+1} \text{ for } -3 < x < 3$$

$$10) \sum_{n=0}^{\infty} \frac{x^2}{a^3} \left(\frac{x^3}{a^3}\right)^n = \sum_{n=0}^{\infty} \frac{1}{a^{3n+3}} x^{3n+2} \text{ for } -a < x < a$$