

9.1

$$\textcircled{17} \sum_{n=0}^{\infty} \sin^n \left(\frac{\pi}{4} + n\pi \right)$$

$$1 + \frac{-\sqrt{2}}{2} + \left(\frac{\sqrt{2}}{2} \right)^2 + \left(\frac{-\sqrt{2}}{2} \right)^3 + \dots$$

$$r = -\frac{\sqrt{2}}{2}$$

$$a_1 = 1$$

$$1 + \frac{1}{\frac{\sqrt{2}}{2}}$$

$$1 - \left(-\frac{\sqrt{2}}{2} \right)$$

$$\frac{2}{2 + \sqrt{2}} \cdot \frac{2 - \sqrt{2}}{2 - \sqrt{2}} = \frac{2(2 - \sqrt{2})}{4 - 2}$$

$$\textcircled{37} \sum_{n=0}^{\infty} x^n = 20$$

$$a_1 = 1 \quad r = x$$

$$1 - x \left(\frac{1}{1 - x} \right) = (20)(1 - x)$$

$$1 = 20 - 20x$$

$$-19 = -20x$$

$$\boxed{\frac{19}{20} = x}$$