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$$\frac{x}{q} + x + xq \Rightarrow x^2 = 4x \Rightarrow x = 4$$

$$\frac{x}{q} + x + xq = 11 \Rightarrow \frac{x + xq^2}{q} = 11 \Rightarrow 11q - xq^2 = 4 \Rightarrow q(11 - xq) = 4$$

$$\Rightarrow q = 4 \text{ و } q = 1$$

$$q = \frac{1}{4} \checkmark$$

۲۰ ✓

$$x^2 = x^4 + 2x^2 + 1 \Rightarrow 1 = x^2(x^2 + 2 - 1) \Rightarrow 1 = x^2(x^2 - 1)$$

$$\Rightarrow x = \pm 1 \Rightarrow x = 1 \Rightarrow 1, 4, 2 \Rightarrow q = \frac{1}{4} \text{ و } q = 1$$

$$x = -1 \Rightarrow 1, 4, -2 \Rightarrow q = -\frac{1}{2} \text{ و } q = 1$$

$$S_1 = \frac{1(1 - (\frac{1}{4})^4)}{1 - \frac{1}{4}} = \frac{1 \times \frac{15}{16}}{\frac{3}{4}} = \frac{\frac{15}{16}}{\frac{3}{4}} = \frac{15}{12} = \frac{5}{4}$$

۲۰ ✓

$$S_2 = a_1 + a_2 + a_3 + a_4 + a_5 = a(1 + q + q^2 + q^3 + q^4) = 2 \times \frac{1}{4} \times \left(\frac{1 - (\frac{1}{4})^5}{1 - \frac{1}{4}} \right) = \frac{15}{16}$$

۲۰ ✓

$$A = \frac{1 + 4x}{x} = \frac{4x}{x}$$

$$B = \sqrt{4x^2 + 1} = 1$$

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$$\Rightarrow A + B = \frac{11}{x}$$

$$av = a \times q^4 \Rightarrow 4x = 1 \times q^4$$

$$\Rightarrow q = \pm 2$$

$$\rightarrow q = 2 \rightarrow B = 1$$

$$\rightarrow A + B = 5.15$$

$$q = -2 \rightarrow B = -1$$

$$\rightarrow A + B = 2.15$$

$$-xk, -\frac{qa}{x}, \dots \Rightarrow \frac{1}{x} + \frac{1}{x} \Rightarrow \frac{1}{x} = \frac{1}{x} - \frac{qa}{x} \Rightarrow \frac{1}{x} = 1$$

$$1, 4, 16, \dots \Rightarrow q^4 = \frac{1}{16} \Rightarrow q = \frac{1}{2}$$

۲۰ ✓

$a + v d \quad a + v d \quad a + v d$ $\Rightarrow (a + v d)^Y = (a + v d)(a + v d) \Rightarrow Y a d^Y = -v d a \Rightarrow Y a d^Y + v d a = 0$ $\Rightarrow d(1 + v d + a) = 0 \Rightarrow \begin{cases} d = 0 \\ d = -\frac{a}{1+v} \end{cases} \quad \checkmark \quad \textcircled{v} \quad \checkmark$ $\Rightarrow \frac{\frac{a}{1+v}}{t_v} \quad , \quad \frac{Y}{t_v} a \quad , \quad \frac{1}{t_v} a \quad \Rightarrow d = \frac{\frac{a}{1+v} - \frac{Y a}{t_v}}{\frac{1}{t_v}} = -\frac{1}{1+v} a$	6
$a + d \quad , \quad a + v d \quad , \quad a + v d \quad \Rightarrow (a + v d)^Y = (a + d)(a + v d)$ $\Rightarrow \cancel{a^Y} + v d^Y + Y d a = \cancel{a^Y} + v d a + v d^Y \Rightarrow v d^Y - v d a = 0 \Rightarrow d(d - a) = 0$ $\Rightarrow \begin{cases} d = 0 & \text{GGE} \\ d = a \end{cases} \Rightarrow Y a \quad , \quad Z a \quad , \quad A a \Rightarrow \phi = Y$ $\Rightarrow Z_0 = \frac{1}{2} \times Y^A = Y^A = \cancel{Y a} = 1 \quad \textcircled{1, v d} \quad \checkmark$	Y
$Y a \phi \quad , \quad Y a \phi^Y \quad , \quad a \phi^W \quad \Rightarrow Y a \phi^Y - Y a \phi = a \phi^W - Y a \phi^Y$ $\Rightarrow Y \phi - Y = \phi^Y - Y \phi \Rightarrow \phi^Y - Y \phi = -Y \Rightarrow \phi(\phi - Y) = -Y$ $\Rightarrow \phi \begin{cases} 1 & \text{GGE} \\ Y & \text{GGE} \end{cases} \quad \checkmark \quad \textcircled{v} \quad \checkmark$	1
$Y \quad , \quad \frac{V}{\varepsilon} \quad , \quad \dots \quad \Rightarrow t_n = \frac{1}{\varepsilon} n + \frac{Y_0}{\varepsilon} \Rightarrow \frac{t_\varepsilon}{\varepsilon} \quad \frac{t_1}{\varepsilon} \quad \frac{t_{12}}{\varepsilon}$ $\left(\frac{1}{\varepsilon} + x\right)^Y = \left(\frac{a}{\varepsilon} + x\right)(-1 + x) \Rightarrow \frac{1}{14} + x + \frac{x}{Y} = x + \frac{x}{\varepsilon} + \frac{a}{\varepsilon}$ $\frac{x}{\varepsilon} = -\frac{19}{14} \Rightarrow x = -\frac{Y1}{\varepsilon} \Rightarrow -\frac{14}{\varepsilon} \quad , \quad -\frac{Y}{\varepsilon} \quad , \quad -\frac{Y a}{\varepsilon}$ $\Rightarrow \phi = \frac{a}{\varepsilon} \quad \textcircled{v} \quad \checkmark$	9
$a + a \phi^e + a \phi^Y = v c \Rightarrow a(1 + r^e + r^Y) = v c \quad \text{I} \quad b = \text{GGE/Dirichlet}$ $b_1 = a r^Y \quad , \quad b_2 = a \quad , \quad b_3 = a \phi^Y \quad , \quad \underline{b_1 = b_2 d} \Rightarrow a d = a \phi^e \Rightarrow d = a \phi^Y - a = a(\phi^Y - 1) \quad \textcircled{1, v d}$ $b_1 = b_2 + q d \Rightarrow a + q d = a \phi^Y \Rightarrow q d = a(\phi^Y - 1) \xrightarrow{\text{div}} \frac{q d}{d} = \frac{a(\phi^Y - 1)}{d} = \frac{a(\phi^Y - 1)}{a(\phi^Y - 1)} = 1$ $\Rightarrow r^e + 1 = q \Rightarrow r = Y \quad \text{I} = a(1 + Y + Y\varepsilon) \Rightarrow a(v c) = v c \Rightarrow a = 1$ $d = a(\phi^Y - 1) = \underline{V} \Rightarrow \quad q = 1 \quad d = 0 \quad a \phi^Y - a = d \Rightarrow \frac{Y^Y}{Y} - \frac{Y^Y}{Y} = 0$	1