

$$\text{c)} a_{10} = \frac{1}{2} \times \frac{2^9}{2^8} = \frac{1}{2}$$

$$\text{d)} \frac{a q^{14}}{a q^{12}} = q^2 = 1/4$$

$$\text{e)} \sqrt{a_{10} \times a_8} = \sqrt{2^1 \times 2^9} = 2^5 \Rightarrow \frac{1}{2} \times 2^{n-1} = 2^5 \Rightarrow n=9$$

$$q^m = 1 \Rightarrow q = 2 \quad a_8 = a \times 2^m \rightarrow a = \frac{1/2}{1/4} = \frac{1}{2} \Rightarrow a_{10} = \frac{1}{2} \times 2^9 = 2^8 = 256$$

$$a_{10} \times a_8 \times a_6 \times a_4 \times a_2 = a_{10}^5 \Rightarrow a_{10} = 2$$

$$a_1 \times a_8 = a_{10}^2 = 9$$

$$2 \times 2 = 2^{a+b} \Rightarrow a+b=0 \quad a+b = \frac{a+b}{2} = 2/0$$

$$\frac{a_{11}}{a_1} = \frac{a_4}{a_4} \Rightarrow \frac{x+1}{x} = \frac{2}{1-x} \Rightarrow x^2 = -(x-1)(x+1) \rightarrow x^2 = 1 - x^2 \Rightarrow 2x^2 = 1$$

$$x^2 = \frac{1}{2} \Rightarrow x = \pm \frac{1}{\sqrt{2}}$$

$$a_1 \times a_8 = a_4 \times a_4$$

$$a_1 + a_8 = 21$$

$$a_2 + a_7 = 12$$

$$\Rightarrow d_{10}^2: 1, 2, 9, 16 \rightarrow 25$$

$$1^m = 1 \times 2 \times 2^2 \Rightarrow d_{10}^2: 1, 2, 9$$

$$\text{a)} S_{10} = 2 \left(\frac{2^{10} - 1}{2} \right) = 2^{10} - 1 \quad \text{b)} \sqrt{(2 \times \frac{a_{10}}{2})^{10}} = 2^{10} \times 2^{10}$$

$$a, aq, aq^2, aq^3, \dots \rightarrow a - aq, aq - aq^2, aq^2 - aq^3, \dots$$

قريب: 9

$$\text{الف)} S = a + (a+d) + \dots + (a+(n-1)d) \rightarrow 2S = (a+(n-1)d) + (a+(n-2)d) + \dots + (a+(n-1)d)$$

$$\Rightarrow 2S = n(a + (n-1)d) \rightarrow S = \frac{n}{2}(a + (n-1)d)$$

$$c) S_n = a + aq + \dots + aq^{n-1} \rightarrow S_n q = aq + aq^2 + \dots + aq^n$$

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$$S_n - S_n q = a - aq^n \Rightarrow S_n(1-q) = a(1-q^n)$$

$$\Rightarrow S_n = a \times \frac{(q^n - 1)}{(q - 1)} = a \times \frac{(1 - q^n)}{(1 - q)}$$