



$$1. S_n = \frac{a_1(r^n - 1)}{r - 1}$$

$$510 = \frac{2(2^n - 1)}{2 - 1}$$

$$2^n = \frac{510}{2} + 1$$

$$2^n = 256$$

$$n = 8$$

$$3. \begin{cases} a_1 + a_2 = 10 \text{ (1)} \\ a_{n+2} - a_n = 3 \\ a_{n+2} = a_n + 3 \end{cases} \left. \begin{array}{l} S_n = \frac{n}{2}(2a_1 + (n-1)d) \\ = \frac{40}{2}(\frac{17}{2} + 39)\frac{3}{2} \\ = 1,340 \end{array} \right\}$$

$$d = \frac{3}{2}$$

จากสมการที่ 1  $a_1 + a_2 = 10$

$$a_1 + a_1 + \frac{3}{2} = 10$$

$$a_1 = \frac{20 - 3}{2} \cdot \frac{1}{2} = \frac{17}{4}$$

$$2. S_n = \frac{a_1(1 - r^n)}{1 - r}$$

$$a_1 + a_2 + \dots + a_{19} + a_{20} = \frac{a_1(1 - r^{20})}{1 - r} = 13 \text{ (1)}$$

$$a_1 - a_2 + \dots + a_{19} - a_{20} = \frac{a_1(1 - (-r)^{20})}{1 - (-r)} = 17 \text{ (2)}$$

$$\frac{\text{(1)}}{\text{(2)}}: \frac{\cancel{a_1(1 - r^{20})}}{1 - r} \cdot \frac{1 + r}{\cancel{a_1(1 - r^{20})}} = \frac{13}{17}$$

$$17 + 17r = 13 - 13r$$

$$30r = -4$$

$$r = -\frac{2}{15}$$

$$4. \frac{11^{111}}{1210} = \frac{11^{111}}{11^2 \cdot 10} = \frac{11^{109}}{10}$$

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$\xrightarrow{\hspace{10em}}$ 
 $\frac{500 \cdot 140}{100} = 1120$

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$\xleftarrow{\hspace{10em}}$ 
 $1120 \times \frac{100}{50} = 2240$