

$$a_1 = 14$$

$$a_2 = 61$$

$$a_2 = a_1 + r \cdot 2 = 14 + 3 \cdot 2 = 61$$

$$3 \cdot 2 = 21 \quad 14, 47, \dots$$

$$2 = V \quad a_n = Vn + 3 \cdot 3$$

$$Vn + 3 \cdot 3 = 140$$

$$Vn = 110 \quad \boxed{n = 10} \checkmark$$

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$$101, 108, 110, \dots, 99V$$

$$Vn + 94$$

$$99V - 94 = 9 \cdot 3$$

$$99V = Vn + 94$$

$$99 \cdot 3 = Vn$$

$$\boxed{n = 129} \checkmark$$

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$$a_{12} + a_1 = 2a + 2 \cdot 3 \cdot 2$$

$$2a_{n+2} = -9n + 12$$

$$a_{n+2} = -2n + 6$$

$$n = n + 2$$

$$a_n = -2(n-2) + 6 = -2n + 10$$

$$a_n = -2n + 10$$

$$a_1 = -2 \cdot 1 + 10 = 8$$

$$a_{12} = -2 \cdot 12 + 10 = -14$$

$$-1 - 14 = \boxed{-15} \checkmark$$

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$$a_p = r^{p-1}$$

$$a_1 - a_p = a_{12} - a_1$$

$$a_1 = r^{x+1}$$

$$r^{x+1} - r^x + 1 = r^x(r-1) + 1 = r^{x+1}$$

$$a_{12} = r^{12} - r$$

$$r^{12} - r = r^{x+1} = r^{12} - r^{x+1} - r$$

$$r^{x+1} = r^{12} - r^{x+1} - r$$

$$r^x = r \Rightarrow x = 1$$

$$12 + 1 + 1 = \boxed{14} \checkmark$$

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$$a + 9d = a_1$$

$$a + 11d = a_{12}$$

$$a + 11d - a - 9d = 0$$

$$2d = 0$$

$$d = 0$$

$$a_{11} = a + 10d$$

$$-12 \cdot 0 + 0 = \boxed{0} \checkmark$$

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۵

$$a + 11d + a + 9d = 2a + 20d = 20$$

$$2a + 0 = 20 \quad a = 10$$

$$\begin{aligned} a_1 + a_2 + a_3 + a_4 + a_5 &= 5a_1 + 10d \\ a_2 + a_3 + a_4 + a_5 &= 4a_1 + 10d \end{aligned} \Rightarrow \frac{1}{3} \left\{ \begin{aligned} 10a + 3d &= 5a + 10d \\ 10a &= 5d \\ d &= 2a \end{aligned} \right.$$

$$\begin{aligned} a_2 &= a_1 + d \\ d &= 2a \end{aligned} \Rightarrow a_2 = a + 2a = 3a$$

$$\frac{a_2}{a} = \boxed{3} \checkmark$$

(2)

6

$$t_n = t_{n-1} + 10$$

یا هر یک از t_1, t_2, t_3, t_4, t_5 را بگیرد
و با 10 اضافه کند

$$d = \frac{10}{1} = 10$$

$$t^r + 10 + 10 + t^r \quad t^r + 10 + 10 + t^r$$

$$(t + 10) - (t + 10) = 100 + 10t$$

$$t_v = t + 10$$

$$\frac{10t + 100}{t + 10} = \frac{10(t + 10)}{t + 10} = \boxed{10} \checkmark$$

$$\boxed{10} \checkmark$$

(2)

7

$$d = \frac{a_{12} - a_1}{11} = \frac{(1 + 11\sqrt{3}) - (1 - 11\sqrt{3})}{11} = \frac{22\sqrt{3}}{11} = 2\sqrt{3}$$

به سوال وقت من

$$\frac{13}{13} = \boxed{1} \checkmark$$

$$\frac{2\sqrt{3}}{1} = \boxed{2\sqrt{3}} \checkmark$$

$$= \boxed{\sqrt{3}} \checkmark$$

(1, 7, 5)

8

$$(r_{n-1}) + r = r_n - 1$$

$$a_{n+1} = 11$$

$$a_k = a_1 + (k-1)d = 1 + (k-1)d$$

$$a_{r_{n-1}} = 11 \quad (r_{n-1})d = 10 \quad d = \frac{10}{r_{n-1}-1} = \frac{10}{0} = \infty$$

$$r_{n-1} \times \frac{10}{r_{n-1}-1} = 11$$

$$n \times \frac{10}{r_{n-1}-1} = 9$$

$$r_{n-1} = 9(r_{n-1}-1) = 8r_{n-1} - 9$$

$$-9n = -9 \quad n = \boxed{1} \checkmark$$

(2)

9

$$\frac{a_{12} + a_{12}}{2} = \frac{a_1 + a_{12}}{2} \quad n=1$$

$$12n + 1 = 10 \quad n=1$$

$$a_1 = 10 \times a_{12}$$

$$a + 12d = 10a + 12d$$

$$12a = -12d$$

$$a = -d$$

$$a_k = a_1 + (k-1)d$$

$$a_k = a_1 + (k-1)(-a_1) = a_1 [1 - (k-1)] = a_1 (2-k)$$

$$a_1 (2-k) = 0$$

$$2-k=0$$

$$k = \boxed{2} \checkmark$$

(2)

10