

$$\left. \begin{array}{l} t_1 = f_0 \\ t_f = 91 \end{array} \right\} \quad 2d = 21 \Rightarrow d = 10.5 \quad \checkmark$$

$$\hookrightarrow f_0 + (n-1)v \Rightarrow f_0 + vn - v \Rightarrow vn + 99 = 208$$

$$vn = 109 \Rightarrow n = 10.9 \quad \checkmark$$

$$100 \leq vn + 99 \leq 999 \Rightarrow 9v \leq vn \leq 999 \Rightarrow 121 \dots \leq n \leq 1111 \dots$$

$$14 \leq n \leq 142 \Rightarrow \frac{142-14}{1} + 1 = 129 \quad \checkmark$$

$$\text{If } n=1 \quad \begin{array}{l} 2a_1 + 9d = 9 \Rightarrow a_1 + 2d = 2 \\ 2a_1 + 9d = 0 \Rightarrow a_1 + 4.5d = 0 \end{array} \Rightarrow d = -2 \quad a_1 = 9$$

$$a_{10} + a_n = 2a_1 + 2cd = 12 - 18 = -6 \quad \checkmark$$

$$r^{x+1} \times r^1 = r^x(a) - f$$

$$\hookrightarrow r^x \times f = a \times r^x - f \Rightarrow r^x = \frac{a-f}{f} \Rightarrow x = 2 \quad \checkmark$$

$$\frac{r^x - 1}{r - 1} = 12$$

$$r^x - 1 = 12(r - 1) \quad r^{x+1} = 12 \quad r^x - 1 = 12 \Rightarrow 12 + 1 + 12 = 25 \quad \checkmark$$

$$t_{15} - t_1 = 2d = 20 \Rightarrow d = 10$$

$$t_1 + t_{15} = 2t_1 + 20d \Rightarrow 2t_1 + 200 = 200 \Rightarrow t_1 = 0 \Rightarrow t_1 = -10 \Rightarrow t_1 = -\frac{10}{1}$$

$$t_{11} = t_1 + 20d = -\frac{10}{1} + 200 = 190 \quad \checkmark$$

$$\frac{10(a_1 + a_{10})}{r} = \frac{10(a_9 + a_{10})}{r}$$

$$r(r+1+fd) = (r+1+fd) \Rightarrow r+1+rd = r+1+fd$$

$$\downarrow$$

$$\frac{tr}{t_1} = \frac{t_1+rt_1}{t_1} \Rightarrow \frac{tr}{t_1} = 1+r$$

$$t_n = t_{n-1} + 10 \Rightarrow rd = 10 \Rightarrow d = 10$$

$$\frac{(t_9 - t_0)(t_9 + t_0)}{(fd)(r+1+fd)} = 10 \Rightarrow \frac{(t_9 - t_0)(t_9 + t_0)}{(fd)(r+1+fd)} = 10$$

$$r - 10\sqrt{e} \quad \text{---} \quad r + \sqrt{e}$$

$$r - 10\sqrt{e} + 10d = r + \sqrt{e} \Rightarrow 10\sqrt{e} = 10d \Rightarrow d = \sqrt{e}$$

$$r, \quad \text{---} \quad e, r$$

$$fn - e$$

$$r + (fn - r)d = er \Rightarrow fnd - rd = e \Rightarrow rd = e \Rightarrow d = e$$

$$r + nd = 11 \Rightarrow nd = 9 \Rightarrow n = 9$$

$$t_e + t_v = t_n + t_{n+e} \Rightarrow r_{n+e} = r \Rightarrow n = 10$$

$$t_n = e t_f \Rightarrow t_1 + vd = e t_1 + 9d \Rightarrow r t_1 = -9d$$

$$\downarrow$$

$$t_1 = -d$$

$$\frac{tr}{t_1} = \frac{t_1 + r t_1}{t_1} = \frac{-d + r(-d)}{-d} = r + 1$$