

$$2, 9, 10, 11, \dots \rightarrow r_n - r$$

$$2, 5, 9, 11, \dots \rightarrow r_n + r$$

(1)

$$t_n = \frac{r_n - r}{r_n + r} \rightarrow t_n < \frac{r}{r} \rightarrow \frac{r_n - r}{r_n + r} < \frac{r}{r} \rightarrow r(r_n - r) < r(r_n + r)$$

$$\frac{10}{11}$$

$$r_n - r < r_n + r$$

$$r_n - r_n < r + r$$

$$r_n < 1r \rightarrow n < \frac{1r}{r} = 1, 0$$

$$n = 6, 2, 3, 4, 5$$

$$t_n: 9, 9, 9, 9, 0, \dots$$

$$t_n = \frac{r_n (a - n)}{r}$$

$$t_n = an^r + bn + c$$

$$ra = -r \rightarrow a = -\frac{r}{r}$$

$$ra + b = r \rightarrow b = \frac{10}{r}$$

$$a + b + c = 9$$

$$c = 0$$

(9)

$$t_n = -9, -1, 0, \dots$$

$$ra = r$$

$$a = 1$$

$$ra + b = r \rightarrow b = -1$$

$$a + b + c = -9 \rightarrow c = -9$$

$$t_n = n^r - n - 9$$

$$a_1 - a_2 = (a_1 + r_1d) - (a_1 + b), r_1d$$

$$r_1 - r_1 = r_1d$$

$$10 = r_1d \rightarrow d = 10$$

$$r_1 = a_1 + d$$

$$a_1 = r_1 - d \rightarrow a_1 = 19$$

$$t_9 = (9)^1 - 9 - 9 = 11 - 9 - 9 = -7$$

(10)