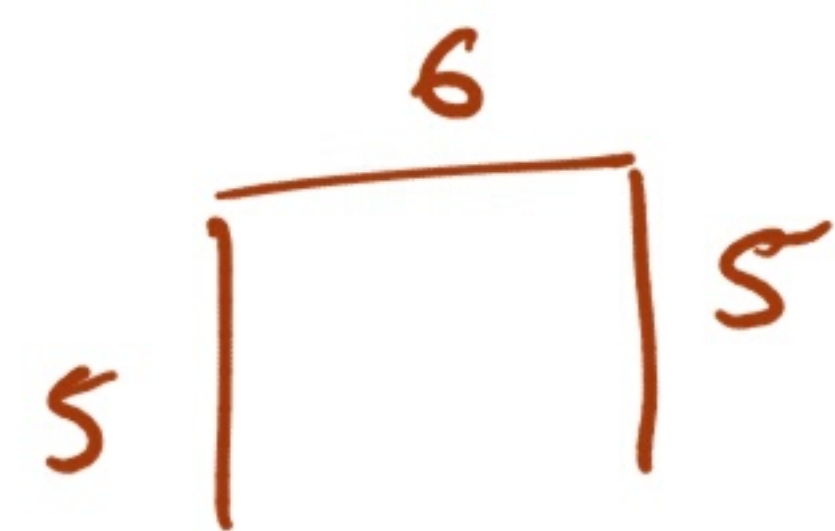


Q7 T_1
 P_1 5 boxes
 P_2 8 boxes
 P_3 11
 P_4 14



$\frac{5}{8}$ \rightarrow 3
 $\frac{11}{14}$ \rightarrow 3
 $\frac{17}{}$



$$T_n = \boxed{3}n \pm \boxed{}$$

$$T_1 = 3(1) \pm \boxed{} = 5$$

$$\underset{p}{3} + \underset{q}{2} = 5$$

$$T_n = 3n + 2$$

$$p = 3$$

$$q = 2$$

$$T_n = a + (n-1)d$$

$$a = 5$$

$$d = 3$$

$$\frac{5 + (n-1)3}{5 + 3n - 3}$$

$$= 3n + 2$$

20 pattern

$$T_n = 3n + 2$$

$$T_{20} = 3(20) + 2$$

$$T_{20} = \frac{60 + 2}{1} = 62 \text{ tiles.}$$

$$S_n = \frac{3n^2 + 7n}{2}$$



(n) pattern = 290 tiles

$$3n + 2 = 290$$

$$\begin{array}{r|l} -2 & 3n = 288 \\ \hline \div 3 & n = 96 \end{array} \begin{array}{l} -2 \\ \div 3 \end{array}$$

$$S_n = \frac{n}{2} [2a + (n-1)d] \quad \text{✗}$$

$$a = 5, d = 3 \quad \text{✗}$$

$$\frac{n}{2} [2(5) + (n-1)3] \quad \text{✗}$$

$$\frac{n}{2} (10 + 3n - 3)$$

$$\frac{n}{2} (3n + 7) =$$

$$\frac{3n^2 + 7n}{2}$$

$$S_{30} = \frac{3(30)^2 + 7(30)}{2}$$

$$= 1455$$

Q5

u_1	13	
u_2	15	2
	19	4
	25	6
	33	8
	43	10
	55	12
	69	14

2nd diff is constant.

$$u_n = n^2 + bn + c$$

$$u_1 = (1)^2 + b(1) + c = 13$$

$$1 + b + c = 13$$

$$-1 \mid b + c = 12 \mid -1$$

$$u_2 = (2)^2 + b(2) + c = 15$$

$$4 + 2b + c = 15$$

$$-4 \mid 2b + c = 11 \mid -4$$

$$\begin{array}{r} -b + c = -12 \\ 2b + c = 11 \\ \hline b = -1 \end{array}$$

$$b = -1$$

$$(-1) + c = 12$$

$$c = 13$$

$$u_n = n^2 - n + 13$$

Pg 27

12
14
16
18

↘ 2
↘ 2
↘ 2

$$T_n = \boxed{2}n + \boxed{}$$

$$T_1 = 2(1) + \boxed{} = 12$$

$$2 + 10 = 12$$

$$T_n = 2n + 10$$

$$T_{30} = 2(30) + 10$$
$$60 + 10 = 70$$

$$T_n = a + (n-1)d$$

$$a = 12$$

$$d = 2$$

$$12 + (n-1)2$$

$$12 + 2n - 2$$

$$= \underline{2n + 10}$$

Q6

$$T_n = 15 - 2n$$

$$T_1 = 15 - 2(1) = 13$$

$$T_2 = 15 - 2(2) = 11$$

$$T_3 = 15 - 2(3) = 9$$

First 3 terms.

$$T_1 \qquad T_8$$

$$13, 11, 9, 7, 5, 3, 1, -1$$

$$\begin{array}{c} \rightarrow \quad \rightarrow \\ -2 \quad -2 \end{array}$$

bii

$$-n^2 + 14n = 0 \quad (-1)$$

$$n^2 - 14n = 0$$

$$n(n-14) = 0$$

$$n = 0$$

$$n = 14$$

$$S_n = \frac{n}{2} [2a + (n-1)d]$$

$$a = 13 \text{ First term}$$

$$d = -2 \text{ diff}$$

$$T_8 = -1 \quad \frac{n}{2} (2(13) + (n-1)(-2))$$

$$b_i \quad \frac{n}{2} (26 - 2n + 2)$$

$$\left[\frac{n}{2} (-2n + 28) \right]$$

$$\frac{-2n^2 + 28n}{2} = -n^2 + 14n$$