

$$n(n+1)/2 = n'(3n'-1)/2 = n''(2n''-1)$$

$$\begin{array}{r}
 +1 \quad -2-3-4-5- \\
 \quad \quad 1 \quad 3 \quad 6 \quad 10 \quad 15 \\
 +3 \quad -4- \quad -7- \quad -10- \quad -13- \\
 \quad \quad 1 \quad 5 \quad 12 \quad 22 \quad 35 \\
 +4 \quad -5- \quad -9- \quad -13- \\
 \quad \quad 1 \quad 6 \quad 15 \quad 28
 \end{array}$$

start @  $H_{144}$   
 test if Pentagonal  
 test if T

Prob 45

$$T(285) = P(165) = 40755 = H(143)$$

next int =  $n+1$

$$\begin{array}{r}
 T_{284} = 40470 \rightarrow 285 + 286 + 287 + 288 \dots T_d = \\
 P_{164} = 40262 \quad : 493 + 497 + 500 + 503 \dots \\
 H_{142} = 40186 \quad : 569 + 573 + 577 + 581 \dots
 \end{array}$$

$$T_0 = P_0 = H_0 = \phi$$

$$\begin{aligned}
 T' &= 1+n \\
 P' &= 4+3(n-1) = 1+3n \\
 H' &= 1+4n
 \end{aligned}$$

maybe:

calc T until >  
 next P, calc  
 next P, repeat  
 if ==  
 calc next H  
 etc...

$$\frac{2T}{n'} + 1 = 3n'$$

$$2T + n' = 3n'^2$$

$$2T = \frac{3n'^2 - n'}{2}$$

$$2T = 3n'^2 - n'$$

$$2T = n'(3n' - 1)$$

$$\begin{aligned}
 \sum_{i=1}^n 1+i &= \sum_{i=1}^n 1+3i = \sum_{i=1}^n 1+4i \\
 285 + \sum_{i=1}^{143} i &= 165 + 3 \sum_{i=1}^{143} i = 143 + \sum_{i=1}^{143} 4i \\
 \rightarrow 285 + \frac{143 \cdot 144}{2} &= 165 + 3 \cdot \frac{143 \cdot 144}{2} = 143 + \frac{143 \cdot 144}{2} \leftarrow \\
 \sum_{i=1}^t 1+i &= \sum_{i=1}^p 1+3i = \sum_{i=1}^h 1+4i \\
 285 + \frac{t(t+1)}{2} &= 165 + 3 \cdot \frac{p(p+1)}{2} = 143 + \frac{h(h+1)}{2} \leftarrow \\
 \rightarrow (t-285) + \frac{t(t+1)}{2} &= (p-165) + 3 \cdot \frac{p(p+1)}{2} = (h-143) + \frac{h(h+1)}{2} \leftarrow
 \end{aligned}$$

$$285 - 165 = 143$$

$$285 + (t-285) = 165 + 3(p-165)$$

$$(t-285) + \frac{t(t+1)}{2} - \frac{285(285-1)}{2} = (p-165) + 3 \left( \frac{p(p+1)}{2} - \frac{165(165-1)}{2} \right) = (h-143) + 4 \left( \frac{h(h+1)}{2} - \frac{143(143-1)}{2} \right)$$

$$(t-285) + \frac{t(t+1)}{2} - 40470 = (p-165) + 3 \left( \frac{p(p+1)}{2} \right) - 40590 = (h-143) + 4 \left( \frac{h(h+1)}{2} \right) - 40612$$

~~285~~

$$t + \frac{t(t+1)}{2} = 40755 = p + \frac{3p(p+1)}{2} - 40755 = h + \frac{2h(h+1)}{2} - 40755 \geq 0$$

~~2t+t^2~~

$$t^2 + 2t + t - 40755 = 3p^2$$

$$\frac{t^2 + 3t}{2} - 40755 = \frac{3p^2 + 5p}{2} - 40755 = 2h^2 + 3h - 40755$$

Sums

$$\begin{aligned} \frac{1}{2} t^2 + \frac{3}{2} t - 40755 &= 0 \\ \frac{3}{2} p^2 + \frac{5}{2} p - 40755 &= 0 \\ 2h^2 + 3h - 40755 &= 0 \end{aligned}$$

$$\frac{1}{2} t^2 + \frac{3}{2} t = 40755$$

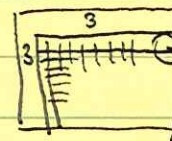
shell extension

- attach notifiers  
to jobs

thresholds

- support moves to  
mutex

pre-compute:



max-found:

