

32

$P(n, r)$

$$P(\underbrace{7}_n, \underbrace{3}_r) = \underbrace{7 \cdot 6 \cdot 5}$$

$k < r?$

Q
7.

k

init

$$1 \leq 3 \quad y$$

$$(7 - 1) \cdot 7 = 42$$

$$4 = 2$$

$$2 \leq 3 \quad y$$

$$(7 - 2) \cdot 42 = 210$$

$$2 + 1 = 3$$

$$3 \leq 3 \quad n$$

r

$$4r - 3$$

rows

$(r-1)$ full rows

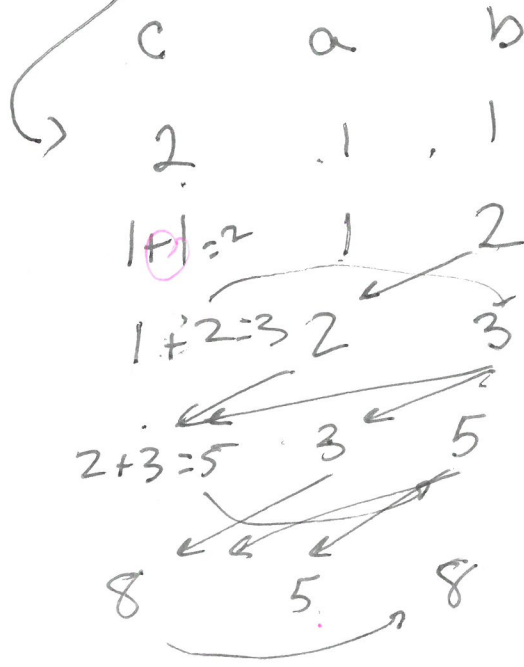
4 in each full row

$$4(r-1) + 1$$

30. To try $n = 5$

Initialize

$1 < 5$?
 $2 < 5$ y
 $3 < 5$ y
 $4 < 5$ y
 $5 < 5$ n
 h



k
 1
 $1+1=2$
 $2+1=3$
 $3+1=4$
 $4+1=5$

$n-1$ rows
 3 per row
 $= 3 \cdot (n-1) + 1$

$n-1$
 $=$
 $3n-2$

$n-1$

Thm 9.2 a pg. 487

$$S_n = a S_{n-1} + b S_{n-2}$$

$$x^2 = ax + b \cdot 1$$

solve for $x = r_1, r_2$

if $r_1 \neq r_2$

$$S_n = c_1 r_1^n + c_2 r_2^n$$

if $r_1 = r_2$ then

$$S_n = (c_1 + n c_2) r_1^n$$

Sec. 9.3

pg 492 #

13, 17, 23

Ex. 9.15

$$S_0 = 7, S_1 = 4$$

$$S_n = -S_{n-1} + 6S_{n-2}$$

$$x^2 = -1 \cdot x + 6$$

$$x^2 + x - 6 = 0$$

$$(x+3)(x-2) = 0$$

$$x = -3 \quad x = 2$$

$$r_1 = -3 \quad r_2 = 2$$

$$S_n = c(-3)^n + d(2)^n$$

$$S_0 = c \cdot 1 + d \cdot 1 = 7$$

$$S_1 = c(-3) + d(2) = 4$$

$$c = 7 - d$$

$$(7-d)(-3) + 2d = 4$$

$$-21 + 3d + 2d = 4$$

$$5d = 25$$

$$d = 5$$

$$c + 5 = 7$$

$$c = 2$$

$$S_n = 2(-3)^n + 5(2)^n$$