

$x$	$x^2 \pmod{11}$	(25)
0	0	
$\pm 1$	1	
$\pm 2$	4	
$\pm 3$	9	$\text{So } x^2 \equiv 0, 1, 3, 4, 5, 9$
$\pm 4$	5	$\pmod{11}$
55	$25 \equiv 3$	

$$(i+6)^2 + (j+2)^2 \equiv 0, 1, 3, 4, 5, 9, 1, 2, 4, 5, 6, 10, 3, 4, 6, 7, 8, 1, 4, 5, 7, 8, 9, 2, 5, 6, 8, 9, 10, 3, 9, 10, 1, 2, 3, 7 \pmod{11}$$

$$(i+6)^2 + (j+2)^2 \equiv 0 \pmod{11}$$

iff  $i+6 \equiv 0$  &  $j+2 \equiv 0 \pmod{11}$

ie  $i \equiv 5$  &  $j \equiv 9 \pmod{11}$

in which case  $(2i+1) \equiv 10+1 \equiv 0 \pmod{11}$ ,

&  $(6j+1) \equiv 55 \equiv 0 \pmod{11}$ .

So that  $p_{10}(11n+6) \equiv 0 \pmod{11^2}$ .

(\*) Then implies  $p(11n+6) \equiv 0 \pmod{11}$ .  $\square$