

## STEP 5: CONJECTURES ABOUT NUMBER

$$30\% \text{ of } 40 = 40\% \text{ of } 30$$

↳ Is this correct?

$$x\% \text{ of } y = y\% \text{ of } x$$

↳ Is this always, sometimes or never true?

## STEP 6: EXPAND BINOMIALS

Expand and simplify:

$$1) (x+2)(x+3)$$

$$4) (2x-1)(x-2)$$

$$2) (x-7)(x+6)$$

$$5) (x+2)(x^2-3x+2)$$

$$3) (x-2)(x-3)$$

$$6) (x-3)(2x^2-7x-6)$$

## STEP 7: CONJECTURES WITH ALGEBRA

$m$  is an even number,  $n$  is odd and  $p$  is prime. Test these conjectures.

$n^2$  is odd

$m+p$  is odd

$mn$  is odd

$n^m$  is odd

## STEP 8: EXPLORE THE 100 GRID

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Highlighted is  $T_{13}$  &  $T_{28}$

The total of  $T_{13}$  is 100.

What is the total of  $T_{28}$ ?

Generalise this.

What would happen if the grid were  $8 \times 8$ ?