

Free-Standing Mathematics Qualification
June 2006
Intermediate Level



MAKING CONNECTIONS IN MATHEMATICS
Unit 7

6987/2PM

PRELIMINARY MATERIAL

DATA SHEET

To be issued to candidates between Friday 5 May 2006 and Friday 12 May 2006

REMINDER TO CANDIDATES

**YOU MUST NOT BRING THIS DATA SHEET
WITH YOU WHEN YOU SIT THE EXAMINATION.
A CLEAN COPY WILL BE MADE AVAILABLE.**

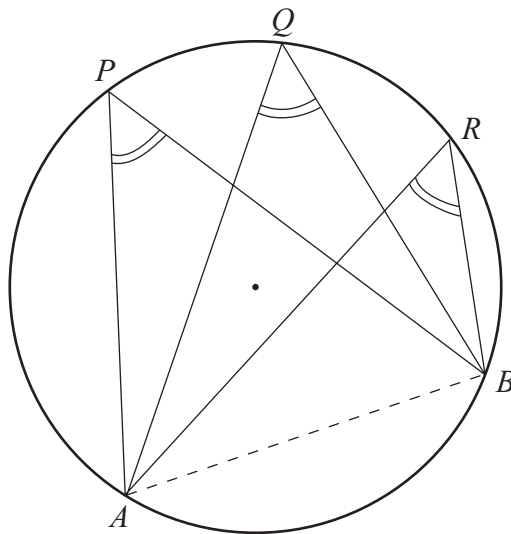
Number grid

A teacher asks children to find the sum of the numbers covered by a T-shaped tile on a 1 to 100 number grid. For example, the tile below covers numbers that add to 110.

The T-shaped tile can be moved to cover four squares on the number grid. The tile is always placed on the number grid so that it looks like a 'T', i.e. it cannot be rotated or reflected.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23				27	28	29	30
31	32	33	34			36	37	38	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

Angles in a circle

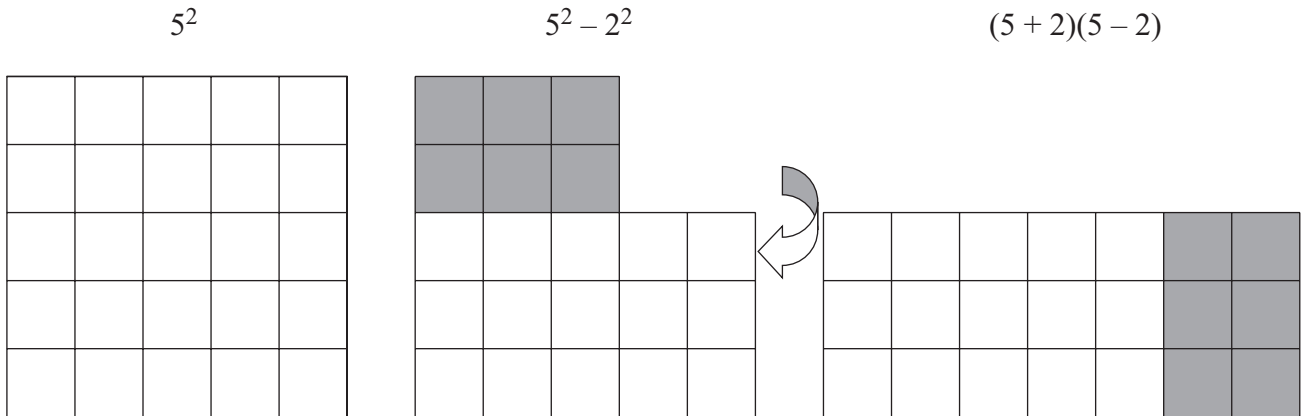


$$\angle APB = \angle AQB = \angle ARB$$

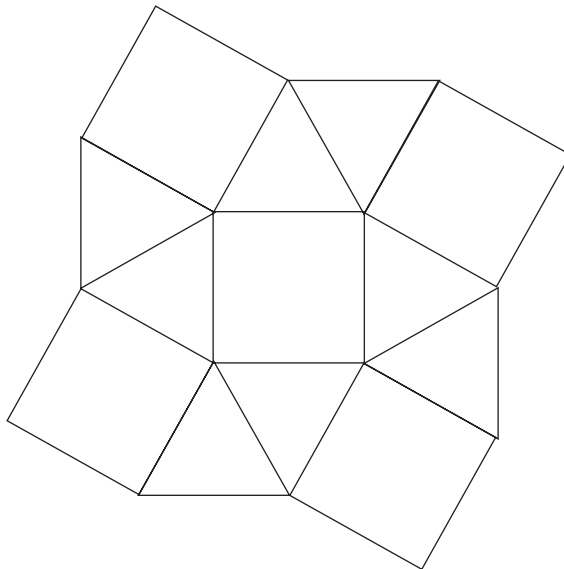
Difference of two squares

$$5^2 - 2^2 = (5 + 2)(5 - 2) = 7 \times 3 = 21$$

The following diagrams show how you might visualise this.

**Tiling pattern**

The tiling pattern shown is based on equilateral triangles and squares.



END OF DATA SHEET

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