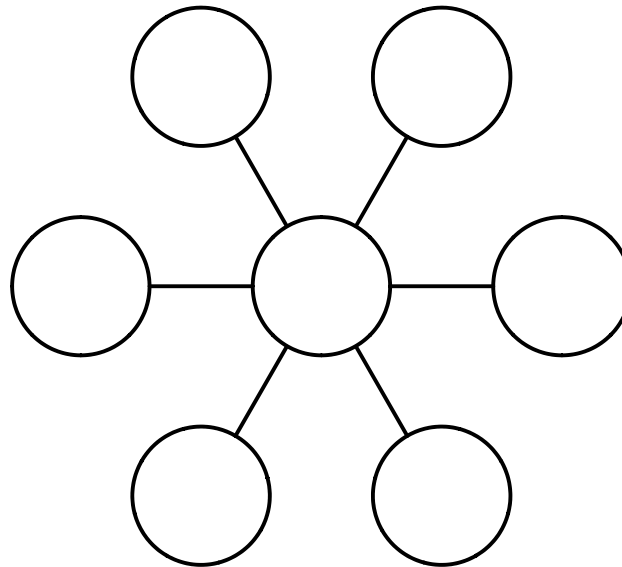# Magic Circles

Baseboard

You can double-click on a **HINT** if you want a clue.

ANSWERS appear at the end

Puzzle 1

Equipment **Seven counters** (any size, any shape) **numbered 1, 2, 3, 4, 5, 6, 7**, made from scrap paper or card

Instructions Place the counters on the circles of the baseboard so that any three circles in a line **add up to 12**   **HINT**

Challenge Re-arrange the same counters on the circles of the baseboard so that any three circles in a line **add up to 10**   **HINT**

Challenge Re-arrange the same counters on the circles of the baseboard so that any three circles in a line **add up to a number other than 12 or 10**   **HINT**
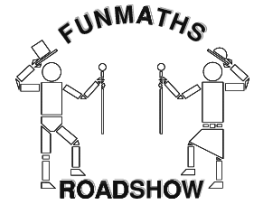

Puzzle 2

Equipment **Seven counters** (any size, any shape) **numbered 7, 8, 9, 10, 11, 12, 13**

Instructions Place the counters on the circles of the baseboard so that any three circles in a line add up to the same total. What is this total?   **HINT**

Challenges There are 3 ways to solve this problem. Can you find them all? The totals are different in each case   . **HINT**

Puzzle 3

Equipment **Seven counters** (any size, any shape) **numbered -5, 10, 13, 1, 4, -2, 7**

Instructions Place the counters on the circles of the baseboard so that the total of the numbers on each of the three lines is the same. What is this total?

Challenges There are 3 ways to solve this problem. Can you find them all? The totals are different in each case.

continued

Magic Circles continued

Instructions   Place the counters on the circles of the baseboard so that the total of the numbers on each of the three lines is the same.

Puzzle 4

Equipment   **Seven counters** (any size, any shape) **numbered**   -4, 0, 4, 3, -2, 5, -1

What is the total?

Puzzle 5

Equipment   **Seven counters** (any size, any shape) **numbered**   1, -6, -7, 6, -2, 7, 2

What is the total?

Puzzle 6

Equipment   **Seven counters** (any size, any shape) **numbered**   -1, 1, -5, 0, 7, 6, 5

What is the total?

Puzzle 7

Equipment   **Seven counters** (any size, any shape) **numbered**   -6, -7, -3, -1, 5, -2, -5

What is the total?

Puzzle 8

Equipment   **Seven counters** (any size, any shape) **numbered**   -6, -1, 1, -4, -3, 5, -2

What is the total?

Puzzle 9

Equipment   **Seven counters** (any size, any shape) **numbered**   40, 70, 14, 80, 44, 64, 20

What is the total?

Puzzle 10

Equipment   **Seven counters** (any size, any shape) **numbered**   41, 18, 48, 57, 59, 43, 82

What is the total?

Puzzle 11

Equipment   **Seven counters** (any size, any shape) **numbered**   8, -42, -9, 18, -15, -32, -23

What is the total?

Puzzle 12

Equipment   **Seven counters** (any size, any shape) **numbered**   21, -3, 97, -2, 74, 52, 43

What is the total?

Puzzle 13

Equipment   **Seven counters** (any size, any shape) **numbered** $2\frac{1}{4}$, $1\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{3}{4}$, 2, $1\frac{1}{4}$
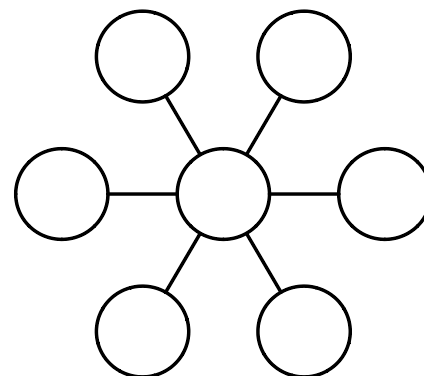
What is the total?

Challenges   There are 3 ways to solve this problem. Can you find them all? The totals are different in each case.

Magic Circles – Hints and Answers

Hints

	Middle	Middle	Middle
Puzzle 1	**4**	**1**	**7**
Puzzle 2	**7**	**10**	**13**
Puzzle 3	**-5**	**4**	**13**
Puzzle 4	**-4**		
Puzzle 5	**1**		
Puzzle 6	**-5**		
Puzzle 7	**5**		
Puzzle 8	**5**		
Puzzle 9	**80**		
Puzzle 10	**48**		
Puzzle 11	**-23**		
Puzzle 12	**-3**		
Puzzle 13	**¾**	**1½**	**2¼**

Answers

	Total	Middle			
Puzzle 1	**12**	4	1, 4, 7	2, 4, 6	3, 4, 5
	10	1	2, 1, 7	3, 1, 6	4, 1, 5
	14	7	1, 7, 6	2, 7, 5	3, 7, 4
Puzzle 2	**28**	7	8, 7, 13	9, 7, 12	10, 7, 11
	30	10	7, 10, 13	8, 10, 12	9, 10, 11
	32	13	7, 13, 12	8, 13, 11	9, 13, 10
Puzzle 3	**6**	-5	-2, -5, 13	1, -5, 10	4, -5, 7
	12	4	-5, 4, 13	-2, 4, 10	1, 4, 7
	18	13	-5, 13, 10	-2, 13, 7	1, 13, 4
Puzzle 4	**-1**	-4	-2, -4, 5	-1, -4, 4	0, -4, 3
Puzzle 5	**1**	1	-7, 1, 7	-6, 1, 6	-2, 1, 2
Puzzle 6	**1**	-5	-1, -5, 7	0, -5, 6	1, -5, 5
Puzzle 7	**-3**	5	-7, 5, -1	-6, 5, -2	-5, 5, -3
Puzzle 8	**0**	5	-6, 5, 1	-4, 5, -1	-3, 5, -2
Puzzle 9	**164**	80	14, 80, 70	20, 80, 64	40, 80, 44
Puzzle 10	**148**	48	18, 48, 82	41, 48, 59	43, 48, 57
Puzzle 11	**-47**	-23	-42, -23, 18	-32, -23, 8	-15, -23, -9
Puzzle 12	**92**	-3	-2, -3, 97	21, -3, 74	43, -3, 52
Puzzle 13	**4**	**¾**	**1, ¾, 2¼**	**1¼, ¾, 2**	**1½, ¾, 1¾**
	4½	**1½**	**¾, 1½, 2¼**	**1, 1½, 2**	**1¼, 1½, 1¾**
	5	**2¼**	**¾, 2¼, 2**	**1, 2¼, 1¾**	**1¼, 2¼, 1½**