

# MATHMAG

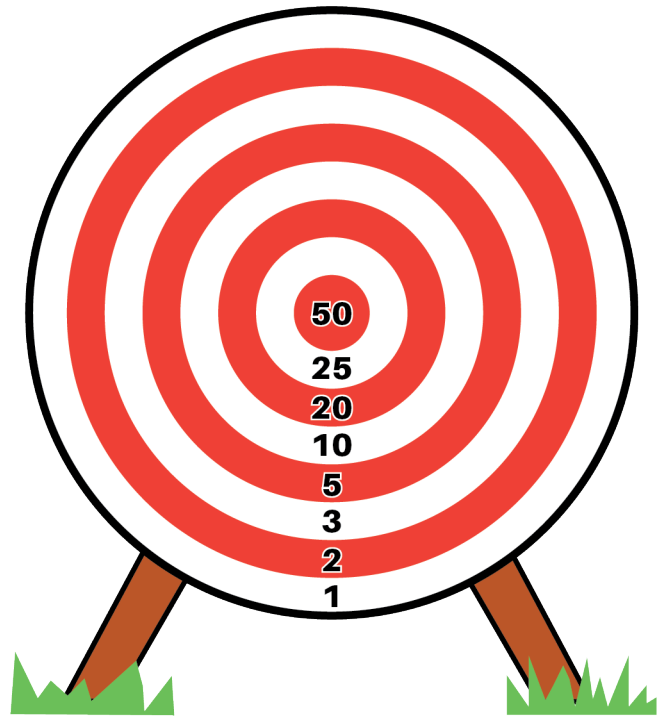
## 1. ON TARGET

Three friends took part in an archery competition. They each had six shots and they all hit the target every time. The three friends tied, each achieving the same score. What was the score?

List the six target positions for each of them.

### **All Shots:**

- 1 bullseye
- 2 x 25
- 3 x 20
- 3 x 10
- 3 x 1
- 2 in every other ring

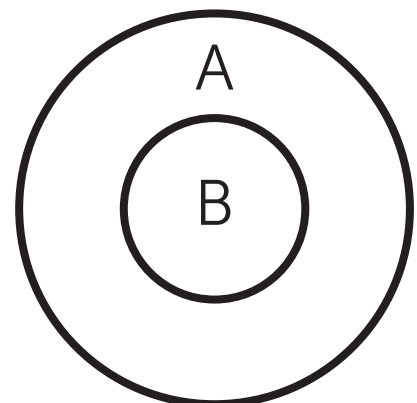


## 2. THREE ARROWS

Carol shot 3 arrows; 2 landed in the A ring and 1 landed in circle B for a total score of 17.

David also shot 3 arrows; 1 landed in A and 2 in B for a total score of 22.

How many points are assigned to circle B?

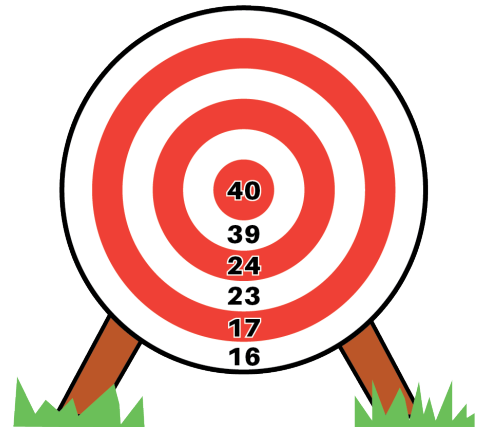


### 3. TARGET PRACTICE

Three archers fired six arrows each at the target shown above. Archer One scored 120, Archer Two; 110, and Archer 3; 100 points.

All arrows hit the target and the bullseye was only hit once.

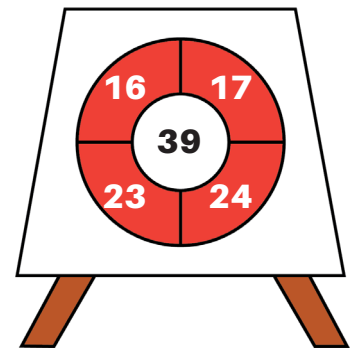
Try to work out where each archer's arrows hit the target.



### 4. TARGET 100

Allie scored exactly 100 on this target.

How many arrows did she use?



### 5. TARGET 100

Complete the addition squares.

Colour all the 2's red

all the 3's blue, etc.

What patterns do you notice?

Now try:

|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| + | 0 | 1 | 2 | 3 | 4 | 5 |
| 0 |   |   |   |   |   |   |
| 1 |   |   |   |   |   |   |
| 2 |   |   |   |   |   |   |
| 3 |   |   |   |   |   |   |
| 4 |   |   |   |   |   |   |
| 5 |   |   |   |   |   |   |

|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| + | 5 | 4 | 3 | 2 | 1 | 0 |
| 5 |   |   |   |   |   |   |
| 4 |   |   |   |   |   |   |
| 3 |   |   |   |   |   |   |
| 2 |   |   |   |   |   |   |
| 1 |   |   |   |   |   |   |
| 0 |   |   |   |   |   |   |

|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| + | 0 | 1 | 2 | 3 | 4 | 5 |
| 5 |   |   |   |   |   |   |
| 4 |   |   |   |   |   |   |
| 3 |   |   |   |   |   |   |
| 2 |   |   |   |   |   |   |
| 1 |   |   |   |   |   |   |
| 0 |   |   |   |   |   |   |

|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| + | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 |   |   |   |   |   |   |
| 1 |   |   |   |   |   |   |
| 2 |   |   |   |   |   |   |
| 3 |   |   |   |   |   |   |
| 4 |   |   |   |   |   |   |
| 5 |   |   |   |   |   |   |

## 6. COMPLETE THE CALCULATION

1. Addition

$$\begin{array}{r} \_ 2 2 \_ \\ 1 \_ \_ 1 \\ \hline 3 4 8 9 \end{array}$$

$$\begin{array}{r} b) \quad 1 1 3 \\ 6 \_ 4 \\ 1 4 \_ \\ \hline \_ 2 6 \\ \hline \_ 4 1 0 \end{array}$$

2. Subtraction

$$\begin{array}{r} a) \quad 4 \_ \_ 2 \\ \_ 3 5 \_ \\ \hline 1 2 1 \end{array}$$

$$\begin{array}{r} b) \quad 6 \_ 3 5 \\ \_ 8 2 \_ \\ \hline 4 \_ 7 \end{array}$$

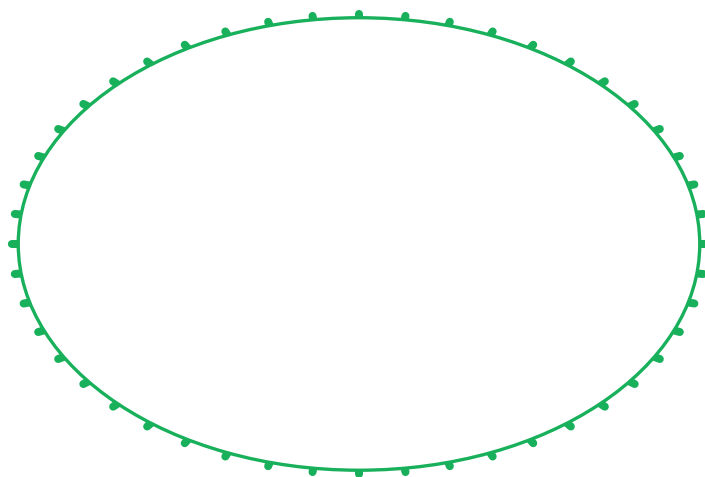
3. Multiplication

$$\begin{array}{r} a) \quad \quad 2 \_ \\ \hline \_ 1 5 \end{array}$$

$$\begin{array}{r} b) \quad \quad \_ \_ \\ \_ 3 \\ \hline \_ 1 2 \end{array}$$

## 7. CURVES

Trace the diagram shown below. Join each point to the point eight places further around. What shape do you get?



## 8. CURVES ON THE AXES

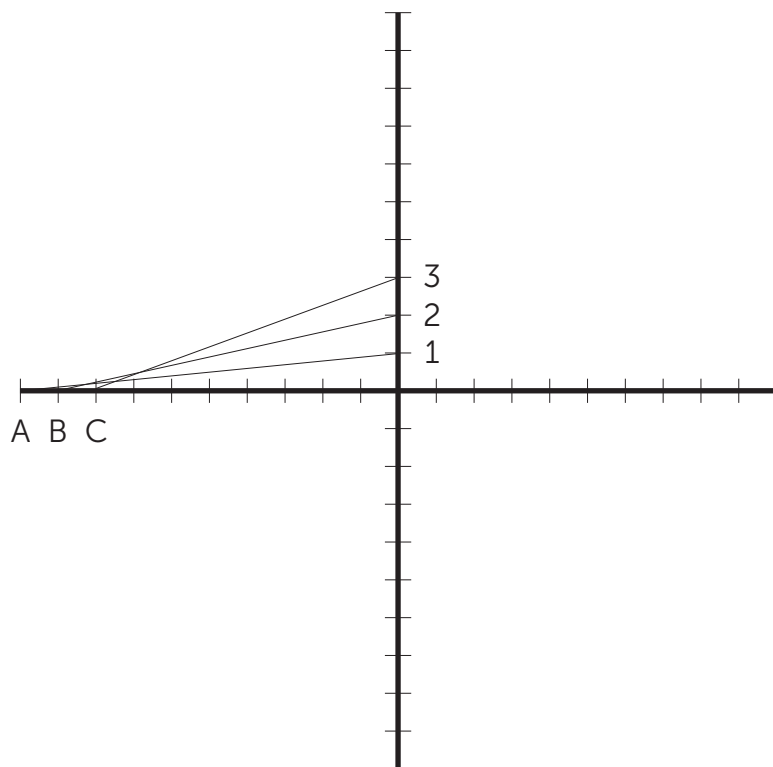
Draw a pair of axes 100 mm long and 100 mm wide on 5 mm graph paper.

Mark off the divisions every 5 mm along the axes.

Join points A to 1, B to 2, C to 3 etc. until a curve is formed.

Repeat this procedure for each of the other three quadrants. The curve you have drawn is called an ASTROID.

Consider the line and rotational symmetry of the curve you have drawn.



## ANSWERS

**1:** The total score was 213, so each archer scored 71. This could be done in the following manner:

Archer 1: 50, 10, 5, 3, 2 and 1

Archer 2: 25, 20, 20, 3, 2, 1

Archer 3: 25, 20, 10, 10, 5, 1

**2:**  $B = 9$

**3:** Archer 1 (120):  $40 + (5 \times 16)$

Archer 2 (110):  $(2 \times 23) + (4 \times 16)$

Archer 3 (100):  $(4 \times 17) + (2 \times 16)$

**4:**  $2 \times 16, 4 \times 17$

**5:** diagonals are formed

**6:**

| addition   | subtraction  | multiplication   |
|--|--|--|
| $\begin{array}{r} 2228 \\ 1261 \\ \hline 3489 \end{array}$ | $\begin{array}{r} 113 \\ 624 \\ 147 \\ \hline 526 \\ 1410 \end{array}$ | $\begin{array}{r} 4472 \\ 4351 \\ \hline 121 \\ 6235 \\ 5828 \\ \hline 407 \\ 23 \\ 5 \\ \hline 115 \\ 24 \\ 13 \\ \hline 312 \end{array}$ |

## The Mathematical Association of Western Australia Inc.

ABN: 83 179 618 286

Street: 12 Cobbler Place, MIRRABOOKA 6061

Postal: P. O. Box 440, MIRRABOOKA 6941

Phone: 08 9345 0388

Web: [www.mawainc.org.au](http://www.mawainc.org.au)



[www.facebook.com/MAWAinc](http://www.facebook.com/MAWAinc)



@MAWAinc



MAWAinc