

## **Darts Display**

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I noticed a dartboard in a sports shop window recently. Three sets of darts were positioned on the board. Each set was grouped as if the darts had been thrown into adjacent numbers (e.g. 5, 20, 1) with one dart from each set in a treble. There were no darts in any of the doubles or bulls.

The darts were in nine different numbers but the score for the three sets was the same. If I told you whether the score was odd or even you should be able to work out the score. The clockwise order of numbers on a dartboard is:

20 1 18 4 13 6 10 15 2 17 3 19 7 16 8 11 14 9 12 5

**What was the score that all three sets of darts made?**

**Solution****Answer 56**

Very little calculation is necessary if three points are appreciated-

Evidently either an odd or even score is unique but not both.

Trebling a number does not change its odd or even character.

The unique answer is far more likely to be even as the arrangement of numbers on a dartboard give far fewer even 'adjacent triads'.

(20) 1 18 4 13 6 10 15 2 17 3 19 7 16 8 11 14 9 12 5 20 (1)

Central number	Number to be trebled		
	first	central	third
7	80	56	74
14	56	62	52
12	44	50	36
20	36	66	28
2	64	38	68
17	26	56	28

Only 56 appears three times.

For the sake of completeness the table is continued below-

1	79	41	75
18	25	59	31
4	71	43	61
13	31	49	35
6	55	41	49
10	43	51	61
15	47	57	31
3	73	45	77
19	35	67	43
16	45	63	47
8	67	51	57
11	49	55	61
9	63	53	59
5	61	47	77

47 and 61 are both possible odd scores (31 not allowed because central numbers of 18 and 13 are too close to allow nine different numbers); confirming 56 as the correct answer.