The Scottish Mathematical Council

MATHEMATICAL CHALLENGE 2006−2007

Entries must be the unaided efforts of individual pupils. Solutions must include explanations.

Answers without explanation will be given no credit.

CURRENT AND RECENT SPONSORS OF MATHEMATICAL CHALLENGE ARE

The Edinburgh Mathematical Society, Professor L E Fraenkel,

The London Mathematical Society and The Scottish International Education Trust.

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Primary Division: Problems III

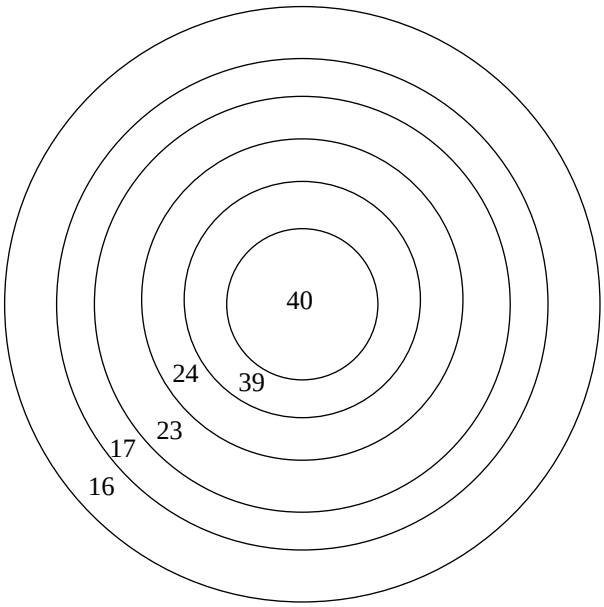
P3.1. A quiz had only 3-point questions and 5-point questions. The best possible score is 100 and there are 26 questions. How many of each type are there?

P3.2. In cleaning out a drawer, Mrs Smith found two old watches which she and her husband had discarded. She wound them up, and, after setting them accurately, started both watches at the same time. An hour later she noticed that her old watch had gained one minute while her husband's had lost two minutes. Checking them from time to time, it was clear that her old watch was running consistently fast and her husband's consistently slow. Next morning, when she looked at the watches again, it was 7 o'clock on her old watch and 6 o'clock on her husband's. What time was it when she started the watches running?

P3.3. On an archery target, the scoring is 40 for the bull's-eye and 39, 24, 23, 17 and 16 respectively for the rings from the centre outwards, as shown. Three players had a match with six arrows each. The result was as follows:

Wendy – 120 points
Pat – 110 points
Bill – 100 points

Every arrow scored, and the bull's-eye was only once hit. Determine the exact six hits made by each competitor.



END OF PROBLEM SET III