

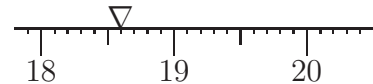
**AUSTRALIAN MATHEMATICS COMPETITION
WARM-UP PAPER
INTERMEDIATE 10**

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Questions 1 - 4, 3 marks each

1. The measurement indicated in the diagram is

(A) 18.4 (B) 18.6 (C) 18.7 (D) 19.4 (E) 19.6



2. A formula in physics states

$$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} .$$

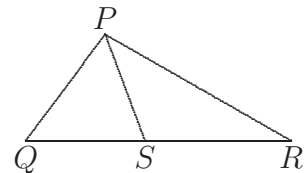
If $R_1 = 3$ and $R_2 = 6$, then R is equal to

(A) $\frac{1}{2}$ (B) 2 (C) $\frac{1}{9}$ (D) 9 (E) $\frac{9}{2}$

3. The smallest possible number of children in a family so that each child has at least one brother and at least one sister is

(A) 2 (B) 3 (C) 4 (D) 5 (E) 6

4. In $\triangle PQR$, S is a point on QR so that the area of $\triangle PQS$ equals the area of $\triangle PSR$. Which of the following must be true?

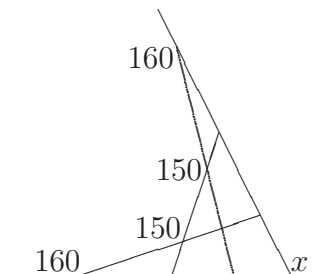


(A) $PS \perp QR$ (B) $QS = RS$ (C) $PQ = PR$
(D) $2PS = QR$ (E) $\angle QPR = 90^\circ$

Questions 5 - 8, 4 marks each

5. In the figure the sizes, in degrees, of certain angles are shown. The value of x is

(A) 110 (B) 150 (C) 100
(D) 120 (E) 130

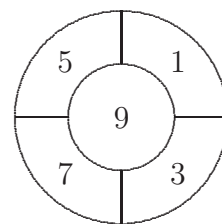


6. Jars of honey have a net weight of 115g each. They are packed in a cardboard box so that there are 8 layers with 84 jars in each layer. The net weight of honey in the box, in kilograms, is closest to

(A) 50 (B) 80 (C) 800 (D) 880 (E) 8000

7. Archibald threw eight darts and all eight hit the dartboard (shown). Which of the following could be his total score?

(A) 6 (B) 27 (C) 39 (D) 48 (E) 74



8. A town's population decreased by 400 people during one year. In the next year, the population increased by 6%, but the number of residents was still 40 fewer than before the decrease. At the beginning of the first year the population was

(A) 6000 (B) 6040 (C) 6360 (D) 6400 (E) 6440

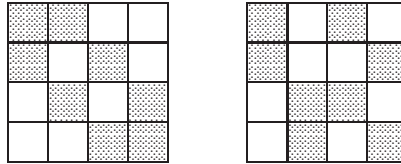
Questions 9 - 10, 5 marks each

9. Each face of a cube can be painted either black or white. Two ways of painting a cube are regarded as different if they cannot be confused no matter which way the cube is held. The number of different ways of painting the cube is

(A) 5 (B) 7 (C) 8 (D) 10 (E) 64

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10. It is proposed to colour the squares of a 4×4 board black and white, so that there are exactly two black squares and two white squares in each row or column. Two examples are shown here.



In how many ways can this be done?

- (A) 36 (B) 54 (C) 72 (D) 120 (E) 90