

MUMS Problem Solving Competition 2014

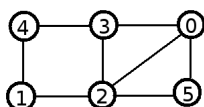
Answers

ROUND ONE

1. 1007
2. $89 \text{ (cm}^3\text{)}$ (since $36 + 24 + 20 + 9 = 89$)
3. 934
4. $8 : 3 : 4$
5. Answer: Ann is 63, Bill is 28.

ROUND TWO

1. 5
2. 103
3. Left: 2.5 (minutes), Right: 0.5 (minutes) (will also accept 3 minutes, overall)



- 4.
5. 740736 (by the equation $\frac{2}{27} \times (10^{n-1} - 10 - 9n)$, with $n = 6$ in this case)

ROUND THREE

1. 2 (minutes)
2. 4 times. (12 and 6 a.m. and p.m.)
3. 250 (metres)
4. $22 + 2 + 2 + 2 = 28$ and $888 + 88 + 8 + 8 + 8 = 1000$ (need both)
5. 132

ROUND FOUR

1. Ben (Sarah has 5 blue/cm^2 , Paul $6/\text{cm}^2$ and Ben $7.5/\text{cm}^2$)
2. $\frac{1}{24}$
3. 2025
4. 24 (since $2 \times 3 \times 4 = 24$)
5. $\sqrt{3}$

ROUND FIVE

1. 11 (seconds)

2. 7

3. 2 and 4

4. 18

5. 2

TIE-BREAKER

1. 12