

Mathlete Training Centre
Round 1 RIPMWC Open

2008 RIPMWC Open Round 1 Answers

- 1) 12 points
- 2) $=271\frac{7}{18}$
- 3) Friday
- 4) Sum of digits of $x = 9 + 72 + 9 = 90$
- 5) Figure 120 will have 14400 triangles.
- 6) 2008th digit is 1.
- 7) No. of ways = $1 + 2 + 3 + \dots + 18 = \frac{18}{2}(1 + 18) = 171$
- 8) Shaded area
 $= A + B - C$
 $= B$ (Since $A = C$)
 $= \frac{60^\circ}{360^\circ} \times 3.14 \times 3^2$
 $= 4.71$
- 9) It has eaten $\frac{2}{7}$ of the apples, i.e. $2 \times 12 = 24$ apples.
- 10) From the table below:

Size of square	No. of Squares	Total
1×1	$7 \times 6 + 10$	52
2×2	$6 \times 5 + 8$	38
3×3	$5 \times 4 + 6$	26
4×4	$4 \times 3 + 4$	16
5×5	$3 \times 2 + 2$	8
6×6	2×1	2
	Total	142

- 11) A, B & D work on Friday.
- 12) The remainder is $1 + 4 + 2 + 2 + 4 + 1 \pmod{7} = 0$
- 13) 10
- 14) 300m
- 15) 186

16) $50\frac{10}{13}$ minutes

17) Area of EGFB = $37\frac{6}{7}\text{cm}^2$

18) $x = (57 + 39)10 = 960$

19) 8 groups.

20) $y = 11$

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