

## Secondary 1 Mathematics Set 1

### PART 1: Multiple-choice questions

1. (3)  
818 014
2. (2)  
 $60\,000 \div 200 = \underline{\quad} \times 5$   
 $300 = \underline{\quad} \times 5$   
 $300 \div 5 = 60$
3. (1)  
 $12 = \textcircled{1} \times 12, \textcircled{2} \times 6, 3 \times \textcircled{4}$   
 $16 = \textcircled{1} \times 16, \textcircled{2} \times 8, \textcircled{4} \times 4$   
 $28 = \textcircled{1} \times 28, \textcircled{2} \times 14, \textcircled{4} \times 7$
4. (2)  
$$\begin{aligned} \left(3 + \frac{4}{3} \times \frac{9}{2}\right) - 5\frac{3}{4} - \frac{22}{5} \div \frac{11}{10} &= (3 + 6) - \left(5\frac{3}{4} - \frac{22}{5} \times \frac{10}{11}\right) \\ &= 9 - \left(5\frac{3}{4} - 4\right) \\ &= 9 - 1\frac{3}{4} \\ &= 7\frac{1}{4} \end{aligned}$$
5. (2)  
 $7.09 \ell = 7090 \text{ ml}$
6. (2)  
 $\frac{0.2}{100} \times \frac{20}{1} \text{ m} = \frac{4}{100} \text{ m}$   
 $= 0.04 \text{ m}$
7. (3)  
 $20m - 4m + 2m \div 2 - 2m = 20m - 4m + m - 2m$   
 $= 15m$
8. (4)  
 $60 \text{ min} \rightarrow 180 \text{ km}$   
 $10 \text{ min} \rightarrow 180 \div 6 = 30 \text{ km}$   
 $25 \text{ min} \rightarrow 2.5 \times 30 = 75 \text{ km} = 75\,000 \text{ m}$
9. (3)  
 $7 + 3 + 2 + 1 + 5 = 18$   
 $123 \div 5 = 24 \text{ R } 3$   
 $18 \times 24 + 7 + 3 + 2 = 444$
10. (4)  
 $7, 3, 2, 1, 5, 7, 3, 2, 1, 5$   
 $\quad \quad \quad \quad \quad \quad \quad \uparrow \quad \uparrow \quad \uparrow \quad \uparrow \quad \uparrow$   
 $\quad \quad \quad \quad \quad \quad \quad \text{R}_1 \text{ R}_2 \text{ R}_3 \text{ R}_4 \text{ R}_5$   
 $138 \div 5 = 27 \text{ R } 3$   
 $\text{R}_3 \rightarrow 2$

11. (2) For those who have bought the first edition. Recent editions show correct solution.

Jan  $\rightarrow$  31 days  
Feb  $\rightarrow$  28 days  
Mar  $\rightarrow$  31 days  
Apr  $\rightarrow$  1 day  
 $31 + 28 + 31 + 1 = 91$  days  
 $91 \div 7 = 13 \text{ R } 0$

|                |                |                |                |                |                |                |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Sun            | Mon            | Tue            | Wed            | Thu            | Fri            | Sat            |
|                |                |                |                | 1              | 2              | 3              |
| 4              | 5              | 6              | 7              | 8              |                |                |
|                |                |                |                | R <sub>1</sub> | R <sub>2</sub> | R <sub>3</sub> |
| R <sub>4</sub> | R <sub>5</sub> | R <sub>6</sub> | R <sub>0</sub> |                |                |                |

Ans: Wednesday

12. (1)  
 $121 \div 7 = 17 \text{ R } 2$
- |                |                |                |                |                |                |                |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Sun            | Mon            | Tue            | Wed            | Thu            | Fri            | Sat            |
|                |                |                |                |                | 1              | 2              |
| 3              | 4              | 5              | 6              | 7              | 8              |                |
|                |                |                |                |                | R <sub>1</sub> | R <sub>2</sub> |
| R <sub>3</sub> | R <sub>4</sub> | R <sub>5</sub> | R <sub>6</sub> | R <sub>0</sub> |                |                |
- Ans: Saturday

13. (4)  
Consider a block of 333 333.  
 $333\,333 \div 7 = 47\,619$   
Each block of 333 333 is divisible by 7.  
 $19 \div 6 = 3 \text{ R } 1 \rightarrow 3$  left  
Ans: Remainder = 3  
Last digit = 0
14. (2)  
Each block of 555 555 and 999 999 is divisible by 7.  
It suffices to consider  $55a99$ .  
When  $a = 6$ ,  
 $55699 \div 7 = 7957$   
Ans:  $a = 6$
15. (3)  
Look for 1<sup>st</sup> such number.  
Multiples of 7:  
7, 14, 21, 28, 35, 42, 49, 56, ...  
Possible actuals (+ 2):  
9, 16, 23, 30, 37, 44, 51, 58, ...  
 $58 \div 9 = 6 \text{ R } 4$   
Next, the multiple of 7 and 9.  
 $7 \times 9 = 63$   
Make an estimate.  
 $58 + 63 \times 14 = 940$   
Check:  $940 \div 7 = 134 \text{ R } 2$   
 $940 \div 9 = 104 \text{ R } 4$   
Ans: 940

16. (1)

|                |                                  |                        |                               |   |
|----------------|----------------------------------|------------------------|-------------------------------|---|
| $\frac{2}{3}A$ | $\frac{2}{3} \times \frac{3}{2}$ | $3 \times \frac{2}{3}$ | $\frac{2}{3} \times 4$        |   |
| 1              | 1 cm <sup>2</sup>                | 2 cm <sup>2</sup>      | $\frac{8}{3}$ cm <sup>2</sup> | B |
| 1              | $\frac{3}{2}$ cm <sup>2</sup>    | 3 cm <sup>2</sup>      | 4 cm <sup>2</sup>             | 1 |
| 4              | 6 cm <sup>2</sup>                | 12 cm <sup>2</sup>     | 16 cm <sup>2</sup>            | 4 |
| D              | $\frac{3}{2}$                    | 3                      | 4                             | C |

$$2 \times \left(\frac{2}{3} + 1 + 4 + \frac{3}{2} + 3 + 4\right) = 2 \times \left(\frac{13}{6} + 12\right)$$

$$= \frac{26}{6} + 24$$

$$= 28\frac{1}{3} \text{ cm}$$

17. (4)  
 $50 \times 50 \times 50 = 125\,000$
18. (1)  
We know  $1 + 2 + 3 + \dots + 99 + 100 = 5050$ .  
The denominators exhibit a pattern of 1 '1', 2 '2s', 3 '3s', 4 '4s' ...