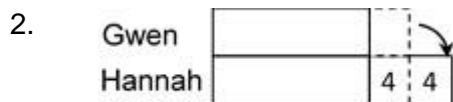**Primary 4** Solutions

Section A:

1. *The 3-digit number is a multiple of 5. Therefore, it must end with either a 5 or a 0. Since the digits add up to 3 (less than 5), it must end with a 0.*
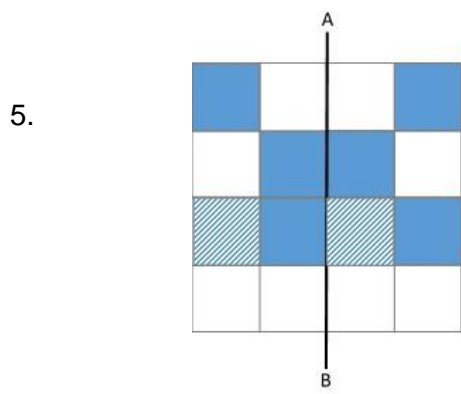
    The number is therefore either 120 or 210. Since 120 is a multiple of 8 while 210 is not, the number has to be <u>120</u>.

2.

    Gwen has to give Hannah <u>4 cookies</u>.

3. *Area of square = 16 cm²*
    Length = √16 = <u>4 cm</u>

4. *The fastest swimmer is the one who takes the least amount of time. Hence the swimmer who completed first is <u>Swimmer B</u> (not Swimmer A).*

5.

6. *The shaded triangle is $\frac{1}{2}$ of the area of $\frac{1}{2}$ of Square ABCD. Hence, it is $\frac{1}{4}$ of the square.*

7. *Since Amir likes neither pizza nor nasi lemak, then satay must be his favourite food. Since Bala does not like pizza and it's not satay (Amir's favourite food), then nasi lemak must be Bala's favourite, and so Chandra's favourite food must be pizza.*

8. *<u>225º</u>*

9. *Just the <u>4 cubes</u> (shaded) have 4 blue faces. The other cubes have either 3 or 5 blue faces.*
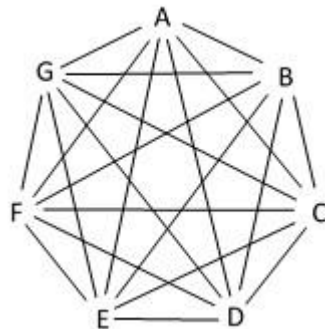
10.
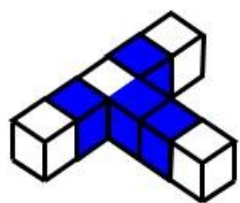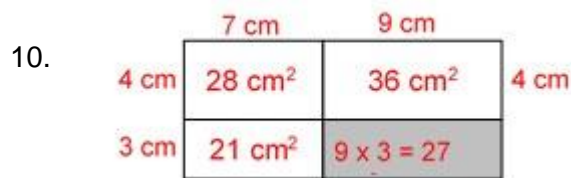
Area of shaded part = <u>27 cm</u>^{2}

Section B:

11. *Label the six friends A, B, C, D, E, F, G. Connect the friends using lines*

There were <u>21 handshakes</u> altogether.

12. $\frac{2}{5}$, $\frac{4}{7}$, $\frac{7}{10}$, $\frac{11}{14}$, $\frac{16}{19}$, $\frac{22}{25}$

(Notice that the numerators of each of these fractions are all 3 less than their denominators, so it is easy to arrange them without working out common denominators for all of them since $\frac{3}{25}<\frac{3}{19}<\frac{3}{14}$ and so on.)

13. *The least number of pupils who answered all 4 questions correctly happens when different pupils could not answer different questions. Since 13 pupils got Q1 wrong, 8 got Q2 wrong, 9 got Q3 wrong and 4 got Q4 wrong, then 42 – (13 + 8 + 9 + 4) = 8. At least <u>8 pupils</u> answered all 4 questions correctly.*

14. *The only number that is both a square number and a cube number, that is less than 100 is <u>64</u>.*

15. *If Prince Charming drew 10 consecutive gold keys, followed by 8 consecutive silver keys, and then only he draws a bronze key, he will have to draw at least 10 + 8 + 1 = <u>19 keys</u>.*

16. *The multiple of 17, that is greater than 17, and less than 227, and ends with the digit 7, is 187, which is 11 × 17.*
227 – 187 = 40
40 ÷ 10 = 4
*There are 11 + 4 = <u>15 notes</u> ($10).*

17. *Whole numbers are divisible by 4 if the number formed by the last two digits are multiples of 4. Since 0 is the smallest given digit and it can only form a multiple of 4 with the digit 6, then the last 2 digits of the number must be 60. Arranging the rest of the digits in descending order, we get the 5-digit number <u>93160</u>.*

18. *Since 273 ÷ 13 = 21, then A = 84 ÷ 21 = <u>4</u>*
    Since 144 ÷ 4 = 36, then B = 13 × 36 = <u>468</u>

19. *Since the digit in the Ones place is 8, the digit in the Tens place must be 7 and the digit in the Hundreds place must be 7 – 4 = 3.*

    The digit in the Ten Thousands place must be sum of the digits in the Thousands and the digit 8. Since none of the digits is 0, the digit in the Thousands place must be 1 and the digit in the Ten Thousands place must be 9.

    Hence, the 5-digit number must be <u>91378</u>.

20.
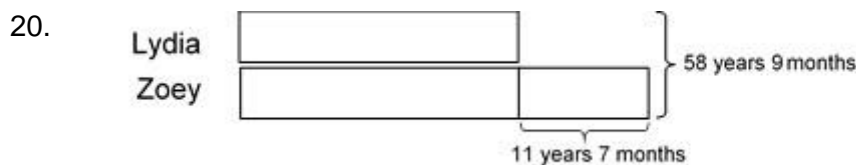
    (58 years 9 months) – (11 years 7 months) = 47 years 2 months
    47 years 2 months = 566 months
    566 months ÷ 2 = 23 years 7 months (Lydia's age)
    Zoey's age is 23 years 7 months + 11 years 7 months = <u>35 years 2 months</u>.

Section C:

21. *Total number of red, yellow and pink beads is 56.*
    Total number of orange and blue beads is $\frac{5}{7}$ × 56 = 40
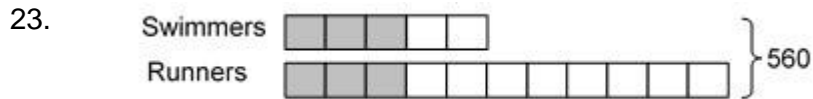   *Mary has 40 – 25 = 15 orange beads.*
    26 + 12 + 18 + 25 = 81

    $\frac{3}{4}$ of total number of beads = 81

    $\frac{1}{4}$ of total number of beads = 81 ÷ 3 = 27 (number of purple and orange beads)

    27 – 15 = 12
    Mary has <u>12</u> purple beads.

22. *Multiple of 6 between 50 and 60 is 54.*
    54 pots – 6 pots at the corners = 48 pots
    48 ÷ 6 = 8 pots in between.
    8 + 2 = 10
    There were <u>10 pots</u> on each side.

23.

5 + 11 = 16 units
1 unit = 560 ÷ 16 = 35
6 units = 6 × 35 = 210

There are <u>210 more runners</u> than swimmers.

24. *Suppose Anne is 22 years old:*
Then Carol's 1st and 3rd statements must be true.
That makes Betty's 2nd and 3rd statements false.
Since two of three statements must be true, we conclude that Anne is not 22 years old, and Anne's 2nd and 3rd statements must be true.
This makes Carol's 3rd statement false and Carol's 1st and 2nd statements true.
Therefore, Anne is <u>23 years old</u>.

25. *Row 1 → 1*
Row 2 → 1 + 2
Row 3 → 1 + 2 + 2 = 1 + (2 × 2)
Row 4 → 1 + 2 + 2 + 2 = 1 + (2 × 3)
:
Row 2016 → 1 + (2 × 2015) = <u>4031 circles</u>