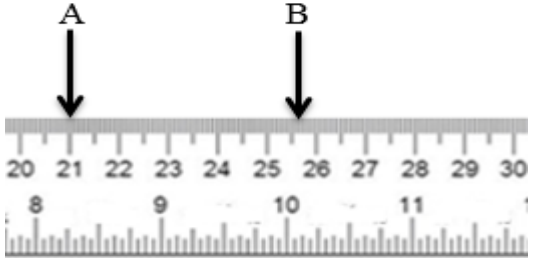
**SECONDARY ENTRANCE ASSESSMENT 2019 SPECIMEN PAPER**

**MATHEMATICS SOLUTIONS**

**SECTION I**

| Item No. | Correct Response |
|---|---|
| **1.** | **Three hundred and four thousand, eight hundred and seven.** |
| **2.** | **498** |
| **3.** | **0.12 0.21 1.02 1.2** |
| **4.** | **140** |
| **5.** | **0.09** |
| **6.** | 32 × 4 = **128** |
| **7.** | 2 463 + 1 029 = **3 492** |
| **8.** | **123** |
| **9.** | **$75.08** |
| **10.** | **$2\frac{1}{4}$, 2.25** |

| Item No. | Correct Response |
|---|---|
| **11.** |   |
| **12.** | 1000g – 300g = **700g** |
| **13.** | 8:00 – 6:15 = **1hr 45mins** ≡ 1:45 ≡ **$1\frac{3}{4}$ hrs** |
| **14.** | 2 500 ÷ 200 = **12.5** = **$12\frac{1}{2}$** Therefore **12** cups are completely filled. |
| **15.** | **Cylinder** has a uniform cross section. |
| **16.** | **Triangular prism** |
| **17.** | **3** quarter turns |
| **18.** | $\frac{42+76+87+53+64+92}{6} = \frac{414}{6} = \mathbf{69}$ |
| **19.** | **Banana** |
| **20.** | 17 – 7 = **10** |

**SECTION 2**

## 21.

- Using equivalent fractions
  $\frac{1}{4} = \frac{2}{8}$ and $\frac{1}{2} = \frac{4}{8}$
  B is midway from $\frac{2}{8}$ **and** $\frac{4}{8}$ at $\frac{3}{8}$

**Alternative:**

- $\frac{1}{4} + \frac{1}{2} = \frac{2}{8} + \frac{4}{8} = \frac{2+4}{8} = \frac{6}{8}$
- $\frac{6}{8} \div 2 = \frac{6}{8} \times \frac{1}{2} = \frac{3}{8}$

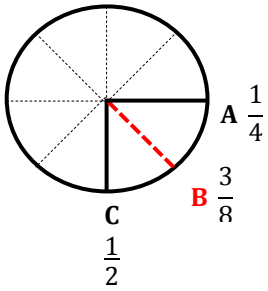
**Alternative:**

- half of length AC = $\frac{1}{2} \times (\frac{1}{2} - \frac{1}{4})$
  $= \frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$

Since B is midway on AC,

- B is $\frac{1}{8}$ from A: $\frac{1}{4} + \frac{1}{8} = \frac{3}{8}$
  OR
- B is $\frac{1}{8}$ from C: $\frac{1}{2} - \frac{1}{8} = \frac{3}{8}$

**Alternative:**
Linking linear model fractions to area model fractions




## 22.

- Mike: 149 – 45 = 104
- Altogether:
  149 + 104 = 253
  OR
  104 + 104 + 45 = 253

**Alternative:**

- 149 + 149 = 298
  OR
  149 × 2 = 298
- 298 – 45 = 253

## 23.

- No. of chairs = 22 × 18 = 396
  No of Extra chairs
  = 468 – 396 = 72
- No. of rows = $\frac{72}{18}$ = 4

**Alternative:**

- 468 ÷ 18 = 26
- 26 – 22 = 4

**24.**

- 1 copy book costs $\frac{7.20}{9}$ = \$0.80
  24 copybooks cost 24 × \$0.80 = \$19.20
- \$7.20 ÷ 3 = \$2.40
  \$2.40 × 8 = \$19.20
- $\frac{\$7.20}{9}$ × 24 = \$19.20

**25.**

- No. of children remaining after girls left
  = 399 – 39 = 360
- No. of girls remaining
  = 360 ÷ 3 = 120
- No. of girls at first
  = 120 + 39
  = 159

**26.**

- 15 and 16
  OR
  14 and 17
  OR
  13 and 18

**27.**

- Discount
  $\frac{20}{100} \times \frac{\$140.00}{1}$ = \$28.00 or $\frac{1}{5} \times \frac{\$140}{1}$ = \$28.00

  Discount price = \$140.00 – \$28.00 = \$112.00

**Alternative:**

- Discount price = $\frac{80}{100} \times \frac{\$140.00}{1}$ = \$112.00

**28.**

- \$240 ÷ \$20 = 12
- 12 – 3 = 9

**Alternative:**

- \$20 × 3 = \$60
- \$240 – \$60 = \$180
- \$180 ÷ \$20 = 9

**Alternative:**

- \$240 ÷ \$60 = 4
- 4 × 3 = 12
- 12 – 3 = 9

**29.**

- Edward. Dividing by 15 will give more groups than dividing by 18.
- Edward. Dividing by 15 will give a larger answer than dividing by 18.
- Edward. The bigger the number you divide by, the smaller is the answer.
- Edward: Dividing by a smaller number gives a greater answer.
- Edward: A smaller number goes into another number more times.

**30.**

- S.I. = $\frac{\$3\,000 \times 12 \times 2}{100}$ = **$**720

  Total = $3 000 + $720 = $3 720

  Monthly = $\frac{\$3\,720}{24}$ = $155

**31.**

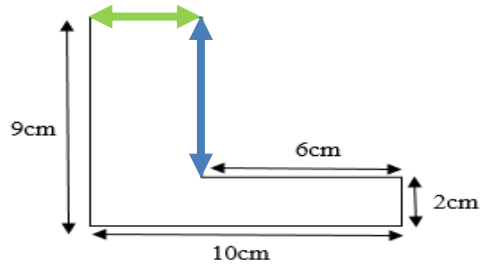
- $11 \times 4\ cm^2 = 44\ cm^2$

**32.**

- 9:00 a.m. to 12:45 p.m. spans 3 hours and 45 minutes
- 3 hours and 45 minutes can be rounded to 4 hours
- 4 × $5 = $20.00

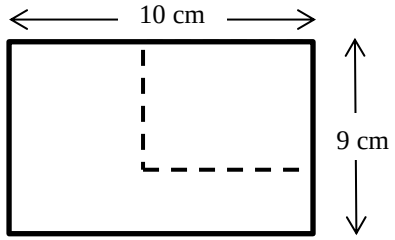
**33.**

- Calculating unknowns:
  10 cm – 6 cm = **4 cm** and 9 cm – 2 cm = **7 cm**
- Addition of sides: (4 + 7 + 6 + 2 + 10 + 9) cm = 38 cm




**Alternative:**

- Reconceptualise the lengths to form a rectangle:
  (9 cm + 10 cm) × 2 = 38 cm
  9 cm + 10 cm + 9 cm + 10 cm = 38 cm

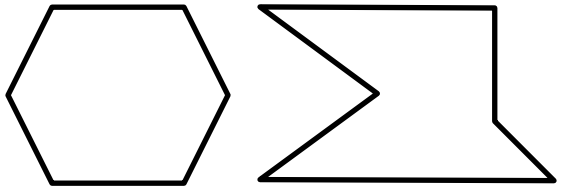



**34.**

- 1 large and 1 small use 48 cm
- Length of ribbon used = 800 – 32 = 768 cm
- No. of large and small = 768 ÷ 48 = 16
- Total no. of bows = 16 × 2 = 32

**35.**

- Any six-sided polygon. e.g.

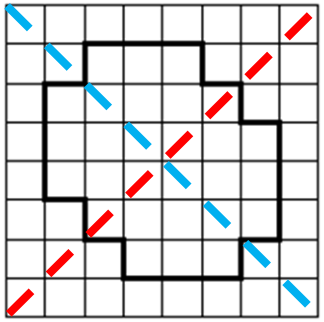


**36.**

- Only 1 pair of parallel sides - **trapezoid**
- 4 equal angles - **rectangle**
- 4 equal sides - **rhombus**

**37.**

- 2 lines of symmetry



**38.**

- 15 + 7 + 2 = 24

**39.**

- Two and a half t-shirts (represents10 children)

**40.**

- Any sport with a reasonable justification of choice **using,**
  **- relevant data presented**
  **- vocabulary of statistics**
  **- comparative vocabulary**
  **e.g.**
  - **Cricket** - Sporting goods are required for the sport with the **greatest** number of participants
  - **Hockey** - More money needs to be spent on coaching as well as promoting the sport with the **least** number of participants

**SECTION 3**

**41.**

- Chocolate = $1 - \frac{3}{7} = \frac{4}{7}$
- Cupcake sales:

  Vanilla: $\frac{1}{4} \times \frac{3}{7} = \frac{3}{28}$

  Chocolate: $\frac{5}{8} \times \frac{4}{7} = \frac{10}{28}$

  Total sales: $\frac{3}{28} + \frac{10}{28} = \frac{13}{28}$
- Remainder: $1 - \frac{13}{28} = \frac{15}{28}$
- To find whole,

  $\frac{28}{15} \times 150 = 280$

**Alternative:**

- Cupcakes remaining

  Vanilla: $\frac{3}{4} \times \frac{3}{7} = \frac{9}{28}$

  Chocolate: $\frac{3}{8} \times \frac{4}{7} = \frac{12}{56}$ Total remaining:

  $\frac{9}{28} + \frac{12}{56} = \frac{30}{56} = \frac{15}{28}$
- To find whole,

  $\frac{56}{30} \times 150 = 280$

  **OR**

  $\frac{28}{15} \times 150 = 280$

**42.**

- 30 free mangoes infer 30 persons bought 2 mangoes for a total of 60 mangoes sold.
  Cost of 60 mangoes
  $= 60 \times 6 = 360$
- Amount remaining from the purchase of single mangoes
  $= 504 - 360 = 144$
- No. of customers who bought a single mango
  $= \frac{144}{6} = 24$

**Alternative:**

- 30 free mangoes infer 30 persons bought 2 mangoes for a total of 60 mangoes sold.
- Total Sales = $504
- No. of customers
  $= \frac{504}{6} = 84$
- No. of customers who bought a single mango
  $= 84 - 60 = 24$

## 43.

Comparing Volumes

- L x B x H
  $= 12 \times 6 \times 10$
  $= 720\ cm^3$
- Vol of 1 small cube
  $= 8\ cm^3$
- No. of cubes
  $= \frac{720}{8} = 90$ cubes
- More cubes needed
  $= 90 - 8 = 82$ cubes

**Alternative:**

Counting cubes

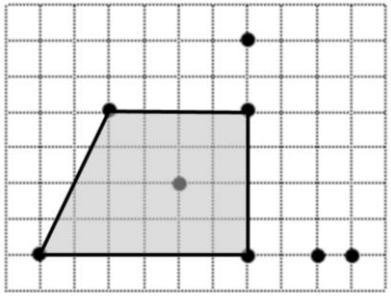
- $5 \times 6 \times 3 = 90$ cubes
- $90 - 8 = 82$ cubes

**Alternative:**

- $\frac{\text{Vol of complete block}}{\text{Vol of 1 small cube}}$
  $= \frac{12 \times 10 \times 6}{2 \times 2 \times 2}$
  $= 90$
- $90 - 8 = 82$

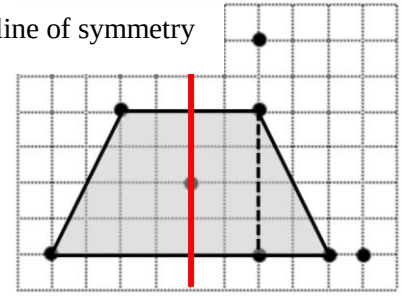
## 44.

**a.**



**b.**

Red line of symmetry



## 45.

**a.**

- Reading off graph at 8cm and adding the original height = 12 + 8 = 20 cm

**b.**

- Drawing the bar to 12 cm