

# PSLE MATHEMATICS

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**MENDAKI**  
In Quest of Excellence

## EXAMINATION FORMAT

### Duration of Paper

The time allocation for the paper is 2 hours 15 minutes.

### Format of Paper

The examination consists of one written paper comprising two booklets.

- Booklet A contains multiple-choice questions
- Booklet B contains short-answer questions and structured or long-answer questions.

Booklet	Item type	Number of questions	Number of marks per question	Weighting
A	Multiple-choice	10	1	10%
		5	2	10%
B	Short-answer	10	1	10%
		10	2	20%
	Structured / long-answer	13	3,4,5	50%
Total		48	-	100%

## HELPFUL TIPS/HINTS

### TIPS for Booklet A – Multiple-choice

- Questions 1 to 10 carry 1 mark each and should take less than one minute to complete.
- Questions 11 to 15 carry 2 marks each.
- Booklet A should be completed within **25 minutes**.

### TIPS for Booklet B – Short answer section

- Questions 16 to 25 carry only 1 mark each
- Questions 26 to 35 carry 2 marks each
- Questions 16 to 35 in Booklet B should be completed within **35 minutes**

### TIPS for Booklet B – Structured/long answer section

- Marks for Questions 36 to 48 vary. Marks are usually indicated at the end of each question.
- Questions 36 to 48 in Booklet B should be completed within **65 minutes**

## SAMPLE QUESTIONS

### Booklet A – Multiple-choice questions

#### Sample Question 1

Taufik is  $m$  years old. His sister is 6 years older. Find the sum of their ages in 5 years' time. (1 mark)

- |     |          |     |           |
|-----|----------|-----|-----------|
| (1) | $m + 11$ | (3) | $2m + 11$ |
| (2) | $m + 16$ | (4) | $2m + 16$ |

#### Sample Question 2

Paul bought some collectible cards. He gave away 15 of them. Maria gave him the same number of collectible cards as he had left. He put all the collectible cards equally into 6 albums. Each album contained 12 collectible cards. How many collectible cards did Paul buy? (2 marks)

- |     |    |     |    |
|-----|----|-----|----|
| (1) | 36 | (3) | 72 |
| (2) | 51 | (4) | 89 |

### Booklet B – Short answer section

#### Sample Question 1

Mr Jonathan has a box of identical tiles. Each tile measures 10cm by 15cm. How many tiles will he need to cover the floor of a room measuring 6m by 4m? (1 mark)

#### Sample Question 2

There are 21 roses in a bouquet of 33 flowers. What is the ratio of roses to the other flowers? (1 mark)

#### Sample Question 3

Rahima spent 35% of her money on a pair of shoes and 20% of the remainder on a bag. What percentage of her money is left? (2 marks)

#### Sample Question 4

Daniel takes 45 minutes to cycle from his home to his friend's home 15 km away. What is his average speed in km/h? (2 marks)

### Booklet B – Structured/long answer section

#### Sample Question 1

In a school, the ratio of women to men is 5 : 3. The ratio of women to children is 3 : 1. There are 12 more women than men. How many children are there? (3 marks)

#### Sample Question 2

David started riding a motorcycle from Town Q at an average speed of 50 km/h. Heather started driving her car from Town Q an hour later and overtook David 2 hours later. What was Heather's average speed? (4 marks)

#### Sample Question 3

Hady had a total of 180 blue and yellow marbles in the ratio of 8 : 7. After he gave away an equal number of each colour of marbles, the number of blue and yellow marbles left was in the ratio 7 : 3. How many marbles did he give away altogether? (4 marks)

#### Sample Question 4

A shop sells bags and wallets only. A bag costs \$42 and a wallet is  $\frac{2}{3}$  the price of a bag. The shop sold  $\frac{1}{2}$  of its items on Saturday.  $\frac{3}{5}$  of the items sold were bags. If the shop collected \$3276 on Saturday, how many wallets were sold on that day? (4 marks)

#### Sample Question 5

Aliff left Happy City for Joy Town at 8am. At the same time, Azmi left Joy Town for Happy City. Aliff was travelling at 90km/h while Azmi at 70km/h. They passed each other at 11am.

- What is the distance between Happy City and Joy Town? (2 marks)
- At what time did Aliff reach Joy Town? (2 marks)

## WORKED SOLUTIONS & TIPS

### Booklet A – Multiple-choice questions

#### Sample Question 1

Taufik is  $m$  years old. His sister is 6 years older. Find the sum of their ages in 5 years' time. (1 mark)

- |     |          |     |           |
|-----|----------|-----|-----------|
| (1) | $m + 11$ | (3) | $2m + 11$ |
| (2) | $m + 16$ | (4) | $2m + 16$ |

#### Method

Their ages now; Taufik  $\rightarrow m$   
His sister  $\rightarrow m + 6$   
Their ages in 5 years' time; Taufik  $\rightarrow m + 5$   
His sister  $\rightarrow (m + 6) + 5$

$$\begin{aligned} \text{The sum of their ages in 5 years' time;} & (m+5) + (m+6) + 5 \\ & = 2m + 5 + 6 + 5 \\ & = 2m + 16 \end{aligned}$$

**Answer: (4)**

#### Sample Question 2

Paul bought some collectible cards. He gave away 15 of them. Maria gave him the same number of collectible cards as he had left. He put all the collectible cards equally into 6 albums. Each album contained

12 collectible cards. How many collectible cards did Paul buy? (2 marks)

- |     |    |     |    |
|-----|----|-----|----|
| (1) | 36 | (3) | 72 |
| (2) | 51 | (4) | 89 |

#### Tips:

- This question looks complicated and difficult to understand.
- The most important clue is that there are 6 albums with 12 cards each.

#### Method 1

Gave away  $\leftarrow$  left  $\rightarrow$  Maria  $\rightarrow$   

15	12	12	12	12	12	12	12
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 $\leftarrow$  bought  $\rightarrow$   
 $3 \times 12 = 36$   
 $15 + 36 = 51$

#### Method 2

$6 \times 12 = 72$   
 2 units  $\rightarrow 72$   
 1 unit  $\rightarrow 72 \div 2 = 36$   
 Paul actually had 36 cards left after he gave 15 of them away.  
 $36 + 15 = 51$

**Answer: (2)**

### Booklet B – Short answer section

#### Sample Question 1

Mr Jonathan has a box of identical tiles. Each tile measures 10cm by 15cm. How many tiles will he need to cover the floor of a room measuring 6m by 4m? (1 mark)

#### Method

Area of tile  $\rightarrow 10\text{cm} \times 15\text{cm} = 150\text{cm}^2$   
 Area of room  $\rightarrow 600\text{cm} \times 400\text{cm} = 240,000\text{cm}^2$   
 No. of tiles needed  $\rightarrow 240,000 \div 150 = 1,600$

**Answer: 1,600 tiles**

#### Common mistakes/ Tips:

- Students forget to convert m to cm or make a mistake in the conversion.
- It is important to know the conversion rate of metric measurement.

#### Sample Question 2

There are 21 roses in a bouquet of 33 flowers. What is the ratio of roses to the other flowers? (1 mark)

#### Method

$33 - 21 = 12$  (other flowers)

Roses : Other flowers  
 21 : 12  
 (divide both sides by 3 to simplify to lowest term)  
 7 : 4

**Answer: 7 : 4**

#### Common mistakes/ Tips:

- Students forget to deduct from the total to find out how many flowers are remaining (i.e. other flowers).
- Another mistake is the failure to simplify to lowest term.
- Another common error is when the student places the ratios incorrectly i.e. 4 : 7 instead of 7 : 4. The best way to prevent this error is to use columns as above.

#### Sample Question 3

Rahima spent 35% of her money on a pair of shoes and 20% of the remainder on a bag. What percentage of her money is left? (2 marks)

#### Method

$100\% - 35\% = 65\%$  (percentage of money left)  
 She spent 20% of the remaining 65% on a bag.  
 $20\% \text{ of } 65\% \rightarrow \frac{20}{100} \times 65\% = 13\%$

She spent  $\rightarrow 35\% + 13\% = 48\%$   
 She had left  $\rightarrow 100\% - 48\% = 52\%$

**Answer: 52%**

#### Common mistakes/ Tips:

- Some students add 35% and 20% as if these two percentages are from the same amount, which is incorrect.
- The key phrase is "of the remainder" which the student should underline to remind himself what to focus on.
- Students also tend to forget the last step to find the percentage of money left.

#### Sample Question 4

Daniel takes 45 minutes to cycle from his home to his friend's home 15 km away. What is his average speed in km/h? (2 marks)

#### Method

Since the question requires the unit to be in km/h, the minutes should be changed to a fraction of an hour.  
 $45 \text{ minutes} \rightarrow \frac{45}{60} = \frac{3}{4} \text{ hour}$

Speed =  $\frac{\text{Distance}}{\text{Time}}$

$\rightarrow 15\text{km} \div \frac{3}{4} \text{ hour}$   
 (Note:  $\frac{3}{4}$  has to be reversed before multiplying)  
 $\rightarrow 15 \times \frac{4}{3}$   
 $= 20$

**Answer: 20 km/h**

#### Common mistakes/ Tips:

- Student divides 15km by 45 minutes and gets the answer as  $\frac{1}{3}$  and thinks the answer is  $\frac{1}{3}$  km/h (i.e. 300 metres per hour, which is the speed of a tortoise!)
- In handling questions on speed, it is important to focus on the unit of measurement required.
- It is better to use fraction instead of decimal as there are 60 minutes to an hour and not 100. Calculations using fraction are also easier.

### Booklet B – Structured/long answer section

#### Sample Question 1

In a school, the ratio of women to men is 5 : 3. The ratio of women to children is 3 : 1. There are 12 more women than men. How many children are there? (3 marks)

#### Method

Men : Women : Children  
 3 : 5 :  
 9 : 3 : 1  
 9 : 15 : 5

There are 6 units more women than men ( $15 - 9 = 6$ )  
 6 units  $\rightarrow 12$  (12 more women than men)  
 1 unit  $\rightarrow 12 \div 6 = 2$   
 5 units  $\rightarrow 5 \times 2 = 10$

**Answer: There are 10 children**

#### Sample Question 2

David started riding a motorcycle from Town Q at an average speed of 50 km/h. Heather started driving her car from Town Q an hour later

and overtook David 2 hours later. What was Heather's average speed? (4 marks)

#### Tips:

- Focus on Heather  $\rightarrow$  she started an hour after David and took 2 hours to catch up with David.
- That means David travelled for 3 hours at 50 km/h before Heather overtook him.

#### Method

David  $\rightarrow$  Distance = Speed  $\times$  Time  
 $= 50 \times 3$   
 $= 150\text{ km}$

Heather took 2 hours to travel 150 km.  
 Speed = Distance  $\div$  Time  
 $= 150 \div 2$   
 $= 75\text{ km/h}$

**Answer: Heather's average speed was 75 km/h.**

#### Common mistakes:

- Weaker students get confused when reading this question. Some students divide 50 by 3. Some students multiply 50 by 3 and get 150 and state that Heather's speed is 150 km/h.
- It is important to note that in order to catch up with someone ahead of you, you need to travel at a higher speed.

#### Sample Question 3

Hady had a total of 180 blue and yellow marbles in the ratio of 8 : 7. After he gave away an equal number of each colour of marbles, the number of blue and yellow marbles left was in the ratio 7 : 3. How many marbles did he give away altogether? (4 marks)

#### Method

$8 + 7 = 15$  units  
 15 units  $\rightarrow 180$   
 The difference between blue and yellow marbles is 1 unit ( $8 - 7 = 1$ )  
 1 unit  $\rightarrow 180 \div 15 = 12$  marbles

B 

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 ?

In the new ratio 7 : 3, the difference in 4 units is the same as the difference in the previous ratio of 8 : 7.

**4 units now represent 12 marbles**

G 

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 ?

Y 

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 } 12

4 unit  $\rightarrow 12$  marbles

1 unit  $\rightarrow 12 \div 4 = 3$  marbles

There are now a total of 10 marbles.

10 units  $\rightarrow 10 \times 3 = 30$  marbles.

At first there were 180 now there are 30 marbles.

$180 - 30 = 150$

Therefore, 150 marbles were given away.

**Answer: 150 marbles**

#### Common Mistakes/ Tips:

- Many students will use guess and check method but it will be time consuming and in this question 150 marbles were given away so students would have to use several attempts before getting the correct combination.
- Look out for the important phrase - "equal amount given away".

#### Sample Question 4

A shop sells bags and wallets only. A bag costs \$42 and a wallet is  $\frac{2}{3}$  the price of a bag. The shop sold  $\frac{1}{2}$  of its items on Saturday.  $\frac{3}{5}$  of the items sold were bags. If the shop collected \$3276 on Saturday, how many wallets were sold on that day? (4 marks)

#### Method

$\frac{2}{3} \times \$42 = \$28$  (cost of bag)

$1 - \frac{3}{5} = \frac{2}{5}$  (wallets sold)

For every 3 bags sold, 2 wallets were sold.

3 bags  $\rightarrow 3 \times \$42 = \$126$

2 wallets  $\rightarrow 2 \times \$28 = \$56$

$\$126 + \$56 = \$182$

$\$3276 \div \$182 = 18$  sets

There were 18 sets of 3 bags and 2 wallets sold on Saturday.

18 sets of 2 wallets  $\rightarrow 18 \times 2 = 36$ .

**Answer: 36 wallets were sold on Saturday.**

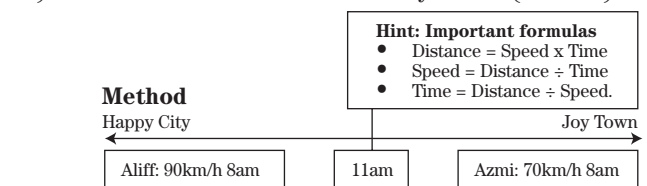
#### Common Mistakes:

- Some students regard  $\frac{3}{5}$  as 3 : 5 and not 3 out of 5. There should be 3 units of bags and 2 units of wallets.
- Others just divide \$3276 by 5 thinking that there are 5 units in total.

#### Sample Question 5

Aliff left Happy City for Joy Town at 8am. At the same time, Azmi left Joy Town for Happy City. Aliff was travelling at 90km/h while Azmi at 70km/h. They passed each other at 11am.

- What is the distance between Happy City and Joy Town? (2 marks)
- At what time did Aliff reach Joy Town? (2 marks)



By 11am, Aliff had travelled  $\rightarrow 90\text{km/h} \times 3\text{hrs} = 270\text{km}$

By 11am, Azmi had travelled  $\rightarrow 70\text{km/h} \times 3\text{hrs} = 210\text{km}$

Total distance  $270 + 210 = 480$