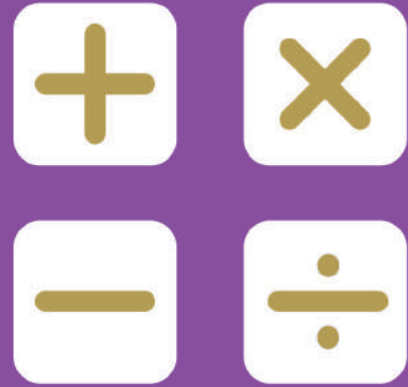


# PAPER C



## SEAMO

Southeast Asian  
Mathematical  
Olympiads

SAMPLE

DO NOT OPEN THIS BOOKLET UNTIL INSTRUCTED.

STUDENT'S NAME:

Read the instructions on the **ANSWER SHEET** and fill in your **NAME, SCHOOL** and **OTHER INFORMATION**.

Use a 2B or B pencil.

Do **NOT** use a pen

Rub out any mistakes completely.

You **MUST** record your answers on the **ANSWER SHEET**.

## UPPER PRIMARY

Mark only **ONE** answer for each question.

Marks are **NOT** deducted for incorrect answers.

### SECTION A

Use the information provided to choose the **BEST** answer from the five possible options.

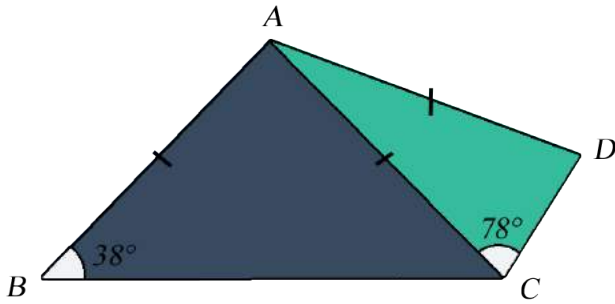
On your **ANSWER SHEET** fill in the oval that matches your answer.

### SECTION B

On your **ANSWER SHEET** fill in your answer within the box provided.

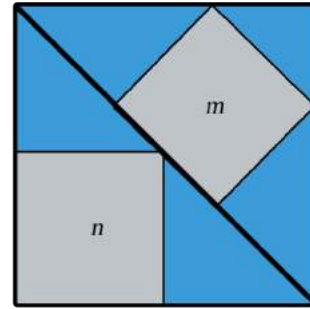
You are **NOT** allowed to use a calculator.

1. In the diagram below,  $AB = AC = AD$ ,  $\angle ABC = 38^\circ$  and  $\angle ACD = 78^\circ$ . What is the size of  $\angle BAD$ ?



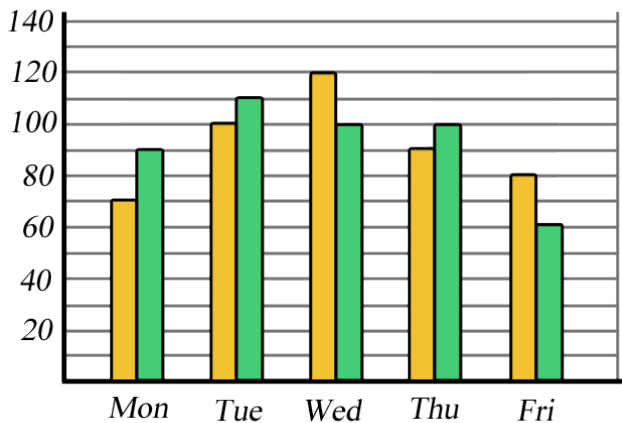
- (A)  $122^\circ$   
 (B)  $124^\circ$   
 (C)  $126^\circ$   
 (D)  $130^\circ$   
 (E) None of the above

3. Two squares of areas  $m$  and  $n$  are inscribed in a bigger square as shown. Find  $m : n$ .



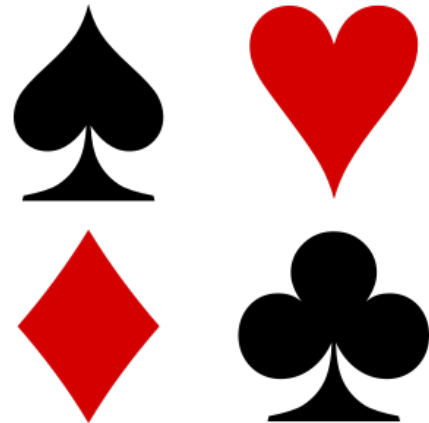
- (A) 4 : 3  
 (B) 4 : 5  
 (C) 7 : 8  
 (D) 8 : 9  
 (E) None of the above

2. The graph shows the number of minutes Mark and Peter spent in Taekwondo training in one week. On average, how many more minutes per day did Peter train than Mark?



- (A) 0  
 (B) 1  
 (C) 2  
 (D) 3  
 (E) 4

4. A deck of cards has 4 suites – spades, hearts, clubs and diamonds. There are 13 cards per suite. What is the minimum number of cards a player must draw to ensure he has at least 1 card from each suite?



- (A) 4  
 (B) 5  
 (C) 39  
 (D) 40  
 (E) 52

## QUESTION 5 IS FREE RESPONSE

Write your answer in the boxes provided on the ANSWER SHEET and fill in the ovals that match your answer.

5. There are three chests A, B and C. One of them contains treasure while the other two are empty.

Chest A's label reads,  
*"This chest is empty."*

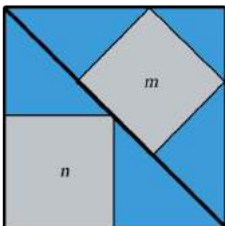
Chest B's label reads,  
*"This chest contains the treasure."*

Chest C's label reads,  
*"Chest B is empty."*

Only one chest is labeled correctly.  
Which chest contains the treasure?



END OF PAPER

QUESTION	ANSWER	SOLUTION	TOPIC	DIFFICULTY
1	E	$\angle CAD = 180^\circ - 78^\circ \times 2 = 24^\circ$ $\angle BAC = 180^\circ - 38^\circ \times 2 = 104^\circ$ $24^\circ + 104^\circ = 128^\circ$	Angles and Triangles	Easy
2	A	$20 + 10 - 20 + 10 - 20 = 0$	Charts	Easy
3	D	 $m = \frac{4}{9}$ $n = \frac{2}{4} = \frac{4}{8}$	Ratio and Percentage	Medium
4	D	<p>The luckiest player will only need to draw the first 4 cards to obtain 1 card per suite.</p> <p>The unluckiest player will keep drawing cards but realize it is the same suite. He will repeat this process until all cards from the first 3 suites have run out. Then his 40<sup>th</sup> card will be a different suite.</p>	Pigeon-hole Principle	Medium

5	Chest A	<p>Assume Chest A contains the treasure. Then, only Chest C is labeled correctly.</p> <p>Assume Chest B contains the treasure. Then, Chests A and B will be labeled correctly.</p> <p>Assume Chest C contains the treasure. Then, Chests A and C will be labeled correctly.</p> <p>Since the scenario is only valid for when 1 chest is labeled correctly, Chest A contains the treasure.</p>	Logic	<b>Medium/Hard</b>
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**Level of difficulty** refers to the expected level of difficulty for the question.

<b>Easy</b>	more than 75% of candidates will choose the correct option
<b>Medium</b>	about 50–75% of candidates will choose the correct option
<b>Medium/Hard</b>	about 25–50% of candidates will choose the correct option
<b>Hard</b>	less than 25% of candidates will choose the correct option