Maths Teacher, 7G

Demo School, City

Subject: Maths

4930/M7G/0049

The ASSET Teacher MyBook you have received will help you understand your students' strengths and weaknesses and also their performance compared to students across the country. It contains performance reports and practice questions on weak skills, along with explanations.

Described below are the different parts of Teacher MyBook and the information they contain.

Personalised Teacher Feedback: This letter is a report of your students' specific strengths and weaknesses.

Student Performance Table: This report provides individual students' question-wise performance.

Bird's Eye View: The Bird's Eye View shows a comparison of the performance of your students with the average national performance.

Year on Year Analysis - Same Batch: This report compares student performance over a year.It compares the performance of the same batch of students compared to the previous year. Note: The analysis may not be valid if the number of students in the batch has changed significantly in the past two years.

Year on Year Analysis - Previous Batch: This report compares student performance over a year. It compares the performance of a specific class compared to the previous year.

Skill-based Summary: This report shows your students' performance in the different skills in a tabular form, highlighting the two strongest skills. It also shows how your students' performance in each skill compares to the national average (all other schools in India) in that skill.

Analysis of Easy/Difficult Questions: This part of the report shows questions that your students found easy and difficult compared to the national average. This information can be used by you to focus your attention on specific questions and skills.

Questions with Common Wrong Answer: We have chosen a few questions for which data highlights potential misconceptions that students might have. It also shows how your students have performed on these questions compared to all other schools in India.

Practice Questions and Explanation: If your school has registered for Student MyBook, each of your students would have received practice questions in their weak skills in the Student MyBook. Practice questions with two of your students' low-performing skills have been provided in this Teacher MyBook. Answers and explanations have also been provided.*

We recommend that you see the analysis with reference to the ASSET question paper provided with this report.

* In English, if any reading comprehension skill is weak, practice with an entire passage has been provided. In Hindi, only for non-reading comprehension skills practice has been provided.

Dear Maths Teacher,

Congratulations on receiving the ASSET test results!

ASSET is a diagnostic test that tells you which skills your students are strong in and which skills you need to help them develop further.

The main strengths of your students in Maths are:

Measurement and data interpretation
Applications in daily life: word/visual problems

The main weaknessess of your students in Maths are:

Geometry: concepts and applications
Number sense, related competency and computation skills

This booklet has been designed to help you work on your students' weak skills. It provides student-wise data and also highlights questions that your students have found easy or difficult.
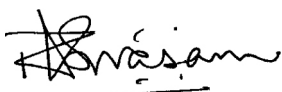
Read through the analysis carefully to know how your students did on each skill. You can use different sections of the booklet (described on the front inside cover) to identify weak areas and also discuss specific questions in class to address misconceptions.

If your students have registered for MyBook, they too would have received personalised booklets that will help them practise their weak skills. You can go through individual students' MyBooks to understand what each one's weak skills are.

Do use these in class and let us know if they helped and share any other comments or suggestions. You can email us at feedback@ei-india.com.

By helping your students work on their weak areas, you can easily help them improve and do better!

Best of luck!

(Srini Raghavan)
Chief Executive Officer - Educational Initiatives

In case of queries, please write to us at feedback@ei-india.com or contact our customer care executive at the toll free number 1800-102-8885 (9 am - 6 pm, Mon - Fri).

No.	Student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	Score	Percentile	Performance
	Correct Answers →	C	D	C	B	C	C	A	D	D	B	C	A	C	C	D	D	B	C	B	B	C	B	B	D	B	B	A	A	B	A	C	A	C	B	C	D	D	A	B	C			
1	Aditi S Patel	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	B	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	A	35	98	
2	Akhil Bandi	✓	B	✓	✓	✓	✓	✓	✓	✓	✓	C	D	B	B	✓	✓	✓	✓	A	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	C	✓	✓	✓	A	D	30	93	
3	Amod A Gawade	✓	✓	✓	A	✓	✓	✓	C	✓	C	A	✓	✓	✓	✓	C	✓	A	C	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	B	C	✓	✓	✓	✓	✓	A	A	B	28	89	
4	Arusha Gomber	✓	✓	✓	A	✓	✓	✓	A	✓	D	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	A	✓	✓	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	34	97	
5	Bhavya Sharma	✓	✓	B	D	A	A	D	✓	C	C	✓	✓	D	A	✓	A	C	A	✓	A	✓	A	C	✓	D	C	B	D	✓	✓	✓	✓	D	A	B	✓	✓	✓	✓	✓	18	62	
6	Gargi S Pande	✓	✓	B	✓	✓	✓	C	✓	✓	A	A	D	D	✓	✓	C	C	A	A	A	✓	✓	✓	D	✓	D	✓	D	✓	B	C	D	✓	A	A	✓	✓	A	✓	B	21	73	
7	Isshira Seth	✓	✓	✓	D	✓	A	✓	A	✓	✓	✓	C	✓	A	C	B	C	D	A	A	✓	✓	D	✓	D	D	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	A	✓	✓	24	81	
8	Jay Jithendra	✓	✓	✓	D	A	A	B	✓	B	A	D	B	✓	A	✓	C	C	A	✓	A	✓	D	C	✓	D	✓	✓	✓	✓	✓	✓	✓	D	B	✓	✓	✓	✓	✓	A	21	73	
9	Jayanth N Kommaraju	✓	✓	A	✓	✓	✓	D	✓	C	C	✓	✓	✓	✓	✓	B	C		✓	✓	✓	✓	A	A	✓	D	✓	✓	D	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	B	27	87	
10	Jithin N Reddy	D	C	D	*	✓	A	D	✓	✓	D	✓	D	B	B	✓	✓	✓	A	✓	A	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	C	✓	✓	B	✓	✓	A	23	79	
11	Kanak T Mehta	✓	✓	A	✓	A	✓	D	✓	✓	C	✓	B	A	✓	C	C	✓	D	A	A	D	D	✓	C	D	C	✓	✓	D	D	C	A	✓	B	A	C	✓	✓	B	*	16	53	
12	Keya Kesani	✓	C	✓	✓	✓	✓	B	✓	✓	D	✓	B	B	✓	B	✓	✓	✓	A	D	C	B	✓	D	✓	✓	✓	D	✓	✓	✓	✓	✓	D	✓	✓	✓	C	✓	C	25	83	
13	Manasa K Nandigama	✓	B	✓	D	✓	D	✓	B	A	B	B	B	A	C	C	C	A	A	C	✓	A	A	C	✓	✓	✓	D	D	A	B	B	✓	✓	A	B	✓	✓	A	B	D	13	36	
14	Mohor Ghosal	✓	✓	A	A	✓	A	✓	✓	✓	✓	✓	✓	✓	D	✓	✓	B	✓	C	✓	✓	✓	✓	✓	A	✓	A	D	✓	✓	C	✓	✓	C	✓	✓	B	✓	✓	D	28	89	
15	Pranav Agrawal	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	C	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	B	✓	✓	✓	✓	35	98	
16	Riddhi Rao	✓	✓	A	D	✓	A	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	A	A	✓	D	✓	✓	✓	✓	✓	C	✓	B	✓	B	✓	A	A	B	✓	Ra	✓	B	24	81	
17	Rithvik T Rajashekaran	✓	✓	✓	A	✓	✓	D	✓	C		D	✓	✓	✓	✓	✓	C	A	✓	A	✓	✓	C	B	✓	C	C	✓	C	✓	✓	✓	✓	B	C	D	C	B	✓	A	21	73	
18	Rittika Saha	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	D	✓	✓	✓	✓	B	✓	C	✓	C	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	C	D	A	32	95	
19	Sailaasya	A	✓	✓	C	✓	✓	B	✓	B	D	✓	✓	D	B	B	C	A	A	A	✓	✓	A	B	✓	✓	C	B	C	C	✓	B	D	D	✓	B	✓	D	✓	✓	✓	17	58	
20	Sankeerth S	✓	✓	A	✓	✓	B	D	A	✓	C	A	B	✓	A	✓	B	A	B	C	A	A	✓	D	A	✓	D	C	✓	D	C	✓	C	D	✓	A	B	A	C	A	D	12	30	
21	Shambhavi S Fitwe	✓	✓	B	✓	✓	A	C	✓	✓	✓	D	✓	B	✓	B	B	C	A	✓	A	✓	✓	✓	✓	C	✓	✓	D	✓	B	C	B	✓	A	✓	✓	✓	✓	✓	B	23	79	
22	Sharanya V Rachana	✓	✓	A	A	✓	B	D	✓	B	C	D	✓	A	✓	B	B	A	D	A	✓	D	✓	D	✓	C	C	D	✓	C	✓	B	C	✓	C	A	B	C	B	C	B	12	30	
23	Shreya Kar	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	B	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	B	37	99	
24	Sruthi Balakrishnan	✓	✓	✓	✓	✓	✓	✓	✓	✓	C	A	✓	✓	B	✓	✓	✓	✓	✓	✓	✓	✓	B	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	C	✓	✓	✓	A	✓	A	32	95	
25	Stuti Hegde	✓	✓	✓	D	✓	✓	✓	A	✓	C	A	✓	✓	✓	✓	B	C	C	A	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	D	✓	✓	✓	✓	✓	✓	A	✓	✓	28	89	
26	Tanvi Doshi	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	D	✓	A	37	99	
27	Thanish R Raj	✓	✓	A	✓	B	B	D	✓	✓	C	A	B	✓	A	✓	B	A	B	C	A	A	✓	D	A	✓	D	C	✓	D	C	✓	C	D	✓	A	B	A	C	A	D	12	30	
28	Vandana C	✓	✓	✓	D	A	A	B	✓	B	A	D	D	✓	✓	A	C	C	A	✓	A	✓	D	C	✓	✓	✓	✓	✓	✓	D	✓	✓	✓	✓	✓	✓	C	B	C	D	20	70	
29	Venkat S Yelisetty	✓	✓	✓	A	✓	✓	✓	A	✓	C	✓	✓	✓	A	✓	C	✓	A	C	A	B	C	✓	C	✓	A	✓	✓	D	B	D	D	A	✓	✓	✓	✓	D	✓	A	21	73	
30	Yashwin Shyam	✓	✓	D	A	B	✓	✓	C	A	✓	B	D	✓	✓	✓	A	C	✓	D	A	✓	✓	A	✓	A	D	✓	✓	A	✓	D	✓	✓	✓	✓	✓	✓	✓	C	D	22	76	

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40			
	% answered correct (section)	93	87	57	47	80	67	50	70	67	27	53	60	67	63	63	43	37	30	50	30	73	90	40	63	77	47	77	93	53	80	57	50	63	87	60	70	57	77	53	20	24.3/40		
	% answered correct (school students)	86	86	63	44	81	64	53	67	70	33	59	56	61	67	69	44	38	36	41	34	75	86	42	59	75	56	78	88	61	80	47	44	58	83	61	67	58	69	63	33	24.3/40		
	% answered correct (all students)	55	76	47	31	69	41	34	56	43	27	34	34	38	46	51	39	22	36	30	18	51	55	20	38	44	35	45	57	45	62	33	31	29	56	50	44	25	43	32	33	16.5/40		

Notes:
Score: Actual score obtained by the student. **Percentile:** Percentage of students who have scored less than that particular student. **Performance:** 'O' indicates outstanding performance in subject.
✓ Indicates correct answer. **A,B,C,D:** Indicates student's incorrect answer. **(Blank)** indicates student omitted answer. ***** Indicates student chose more than one option.

The Bird's Eye View shows a comparison of the performance of your students with the national average performance.

Your class 7 G, has performed better than the national average in the Maths ASSET paper this year.

Class 7	Maths	No. of students
7	70%	2
7G (Your Class)	147%	30
7K	152%	32
All sections combined	147%	64

Performance as a percentage of National Average

	Above Average Range		Below Average Range		Within Average Range

National average is taken as 100%. The value in the table indicate performance as compared to the national average.

E.g. If the section average in Science is 40% and the national average is 60%, then the table will show (40/60)*100=67%. 95% to 105% is treated as similar to national average performance. Performance greater than 105% and below 95% is considered as performance above and below the national average range respectively.

Raw Performance Data

Comparison of section average and best performance with all schools in the country.

———— National Average   ▪ Average Section Performance   ▫ Best Performance by a Student
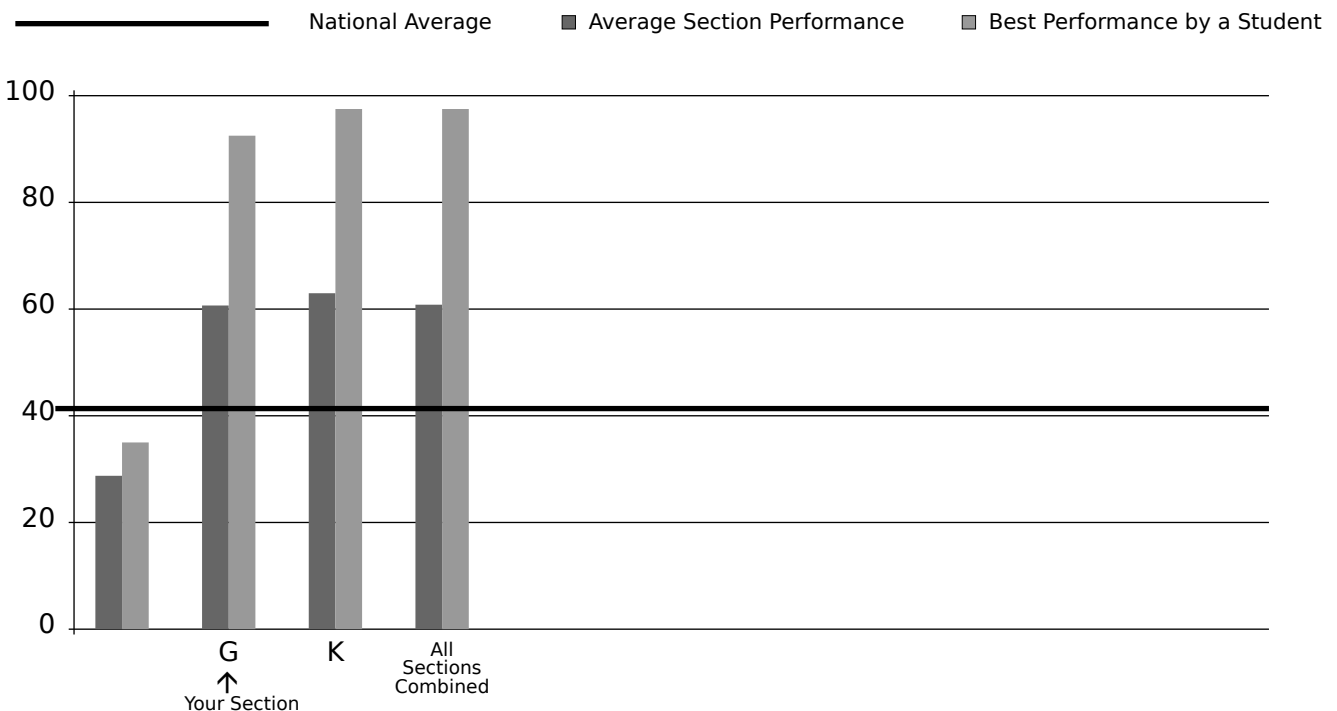
Comparison of performance of the same batch of students across different classes:

The graph below shows you how students' performance has changed over a year. The performance of students in class this year is compared to the performance of the same batch of students in their class in the previous year. (Note: The analysis may not be valid if the number of students in the batch has changed significantly in the past two years.)

Class	Average Performance	Performance in comparison to National Average	No. of Students
6G	63.3	+17.79%	22
7G	60.67	+19.32%	30

7G (2016) vs 6G (2015)

Performance of the same batch of students
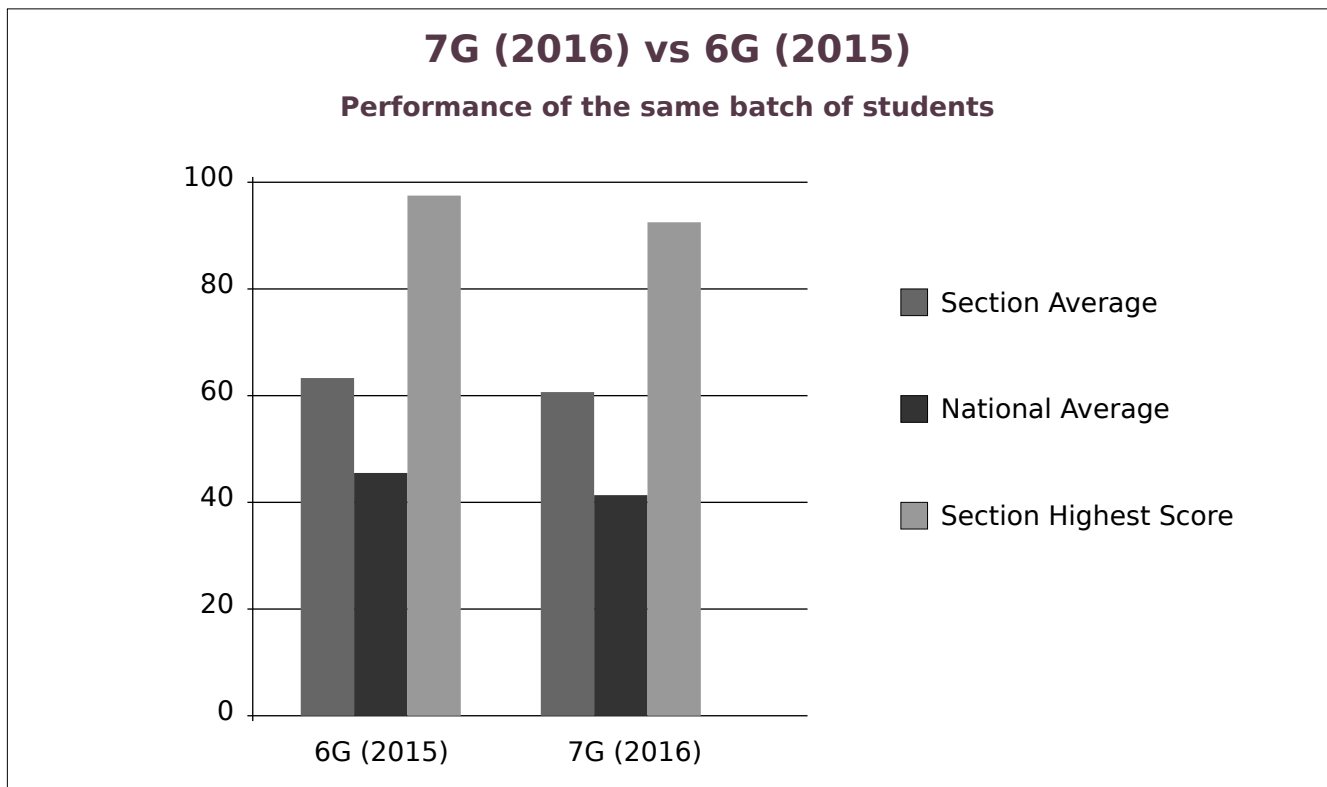
Your students in class 7 G have not improved in the average performance in Maths from last year.

Comparison of performance of students of the current batch with the previous batch:

The following graph compares the performance of your current batch of students against the previous batch. The horizontal bars in the graph show how students of your class have fared against the national average in each skill across two years.

The thick black vertical line in the centre marks the national average. For example, a bar towards the right would mean that students performed higher than the national average that year in the particular skill.

Maths Performance

Class 7 Section G
Batch of 2015 vs Batch of 2016

■ 2015   ■ 2016

Skill	
Overall	
Number sense, related competency and computation skills	
Integers: concepts and applications	
Factors and multiples	
Fractions, decimals and ratios: concepts and applications	
Geometry: concepts and applications	
Mensuration: area and perimeter; concepts, computation	
Algebra: concepts and applications	
Applications in daily life: word/visual problems	
Measurement and data interpretation	
Problem solving: advanced or challenging problems	

-100   -80   -60   -40   -20   0   +20   +40   +60   +80   +100

NATIONAL AVERAGE

2015 (28 Students)
2016 (30 Students)

This table shows how your students' performance compares to the overall school performance and the national average (all other schools in India). The skills with a '*' in the first column, if any, are those in which your students have performed better than the national average.

Class: 7 G   Subject: Maths   Number of Students: 30

S.No.	Skill	Questions	Class 7 G Performance	Class 7 Performance (School)	Class 7 Performance (National)
			Average	Average	Average
1*	Number sense, related competency and computation skills	6, 10, 19, 26, 31	49.3%	48.1%	33.2%
2*	Integers: concepts and applications	15, 33, 34	71.1%	69.8%	45.5%
3*	Factors and multiples	3, 4, 9	56.7%	58.9%	40.3%
4*	Fractions, decimals and ratios: concepts and applications	27, 32, 36, 38, 39	65.3%	64.1%	38.8%
5*	Geometry: concepts and applications	11, 18, 24	48.9%	51.6%	35.9%
6*	Mensuration: area and perimeter; concepts, computation	1, 7, 12, 20, 29	57.3%	58.1%	37.2%
7*	Algebra: concepts and applications	5, 16, 17	53.3%	54.2%	43.3%
8*	Applications in daily life: word/visual problems	2, 14, 28, 30, 35	76.7%	76.2%	58.2%
9*	Measurement and data interpretation	8, 21, 22	77.8%	76.0%	54.0%
10*	Problem solving: advanced or challenging problems	13, 23, 25, 37, 40	52.0%	53.8%	32.1%

Note - The average preformance is calculated from the number of correct responses given by students to the questions constituting specific skills.

Strong skills		Weak skills	
1.	Measurement and data interpretation	1.	Geometry: concepts and applications
2.	Applications in daily life: word/visual problems	2.	Number sense, related competency and computation skills

This part of the report shows questions that the children of your class found easy and difficult. This information can be used by you to focus your attention to specific questions and skills. You can also use the student performance table to focus on individual students. (Please refer to the ASSET paper for the complete text of these questions.)

Questions which students of your school found the MOST DIFFICULT compared to the rest of the country:

Q 40 Imran watched 30 episodes of a documentary series. Each day he watched two times the number of episodes he watched the previous day.

What is the LEAST number of episodes he could have watched on the first day?

A 15 **B** 10 **C** 2 **D** 1

Skill: Problem solving: advanced or challenging problems

QNo.	Paper Code	Correct Answer	% answered correct (your students)	% answered correct (all students)	Graph	
40	27W	C	20%	33%	Your School	
					All Schools	

Q 18 For which type of quadrilateral(s) can the perimeter be calculated by knowing the length of just one of its sides?

A only a square
B only a square and a rectangle
C only a square and a rhombus
D all - a square, a rectangle and a rhombus

Skill: Geometry: concepts and applications

QNo.	Paper Code	Correct Answer	% answered correct (your students)	% answered correct (all students)	Graph	
18	27W	C	30%	36%	Your School	
					All Schools	

Q 10 Look at the two expressions below. The boxes represent the same arithmetic operation.

24315 □ (12431 - 5)

24315 □ 12431 - 5

What could be the operation in the box such that both give the same result?

A only ×
B only +
C only + or -
D (Adding brackets will always give a different result.)

Skill: Number sense, related competency and computation skills

QNo.	Paper Code	Correct Answer	% answered correct (your students)	% answered correct (all students)	Graph	
10	27W	B	27%	27%	Your School	
					All Schools	

Questions which students of your school found the EASIEST compared to the rest of the country:

Q 1 Look at shape drawn on the grid below. Some of the grid lines are missing.

1 cm

1 cm
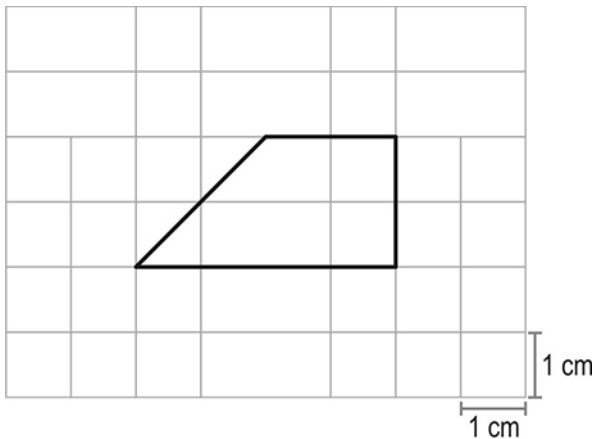
(Note: The graph is to scale.)

Which of the following is closest to the area of the shape?

A 4 sq cm   **B** 5 sq cm   **C** 6 sq cm   **D** 7 sq cm

Skill: Mensuration: area and perimeter; concepts, computation

QNo.	Paper Code	Correct Answer	% answered correct (your students)	% answered correct (all students)	Graph	
1	27W	C	93%	55%	Your School	
					All Schools	

Q 28 David ate $\frac{4}{5}$ of the custard kept in a container. The amount of custard remaining was 100 mL.

How much custard was there in the container before David ate some?

A 500 mL   **B** 400 mL   **C** 80 mL   **D** 20 mL

Skill: Applications in daily life: word/visual problems

QNo.	Paper Code	Correct Answer	% answered correct (your students)	% answered correct (all students)	Graph	
28	27W	A	93%	57%	Your School	
					All Schools	

Q 22 Which of the following is MOST LIKELY TO HAVE BEEN the temperature at 12:30pm in Kolkata that day?

A 16.5°C   **B** 26.5°C   **C** 17°C   **D** 31°C

Skill: Measurement and data interpretation

QNo.	Paper Code	Correct Answer	% answered correct (your students)	% answered correct (all students)	Graph	
22	27W	B	90%	55%	Your School	
					All Schools	

From the questions that students across the country have found the most difficult, we have chosen a few to highlight potential misconceptions that students might have. For each question, we have given a break-up (in percentage form) of the number of students choosing a particular option. This has been done both for the section of your school and all the students nationally. Compare these to find out how your students have performed.

We have highlighted in light grey the correct option and in dark grey the most common wrong answer, and provided an explanation of why students are choosing the most common wrong option. It is recommended that you discuss these questions with the students to uncover students' rationale in choosing the most common wrong option. (Please refer to the ASSET paper for the complete text of these questions.)

Q 20 A rectangle is cut into 4 equal parts as shown below.
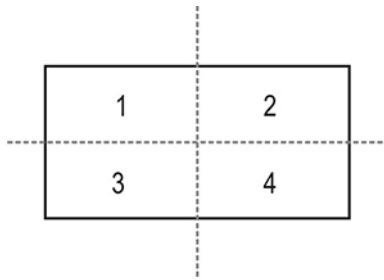
What is the perimeter of EACH part compared to the perimeter of the rectangle?

A It is $\frac{1}{4}$ of the perimeter of the rectangle.

B It is $\frac{1}{2}$ of the perimeter of the rectangle.

C It is 4 times the perimeter of the rectangle.

D (Cannot conclude without knowing the length and breadth of the rectangle.)

The question tests the understanding of perimeter. Students selecting option B have correctly understood that the sum of the sides of each part is equal to half the perimeter of the big rectangle. Students selecting option A feel that since the rectangle is divided into 4 parts, each part has a perimeter which is 1/4 of the perimeter of the big rectangle. Students selecting option C think that since the rectangle is divided into 4 parts the perimeter of each part will be 4 times that of the rectangle. Students selecting option D are not able to utilise the information in the question to find the perimeter of each part.

Papercode: 27W, Question no: 20					
Performance	Option A	Option B	Option C	Option D	No. of Students
Section	63%	30%	7%	0%	30
National	53%	18%	10%	18%	6293

Q 17 Shown below is a pattern of shapes formed using buttons.

Figure 1   Figure 2   Figure 3
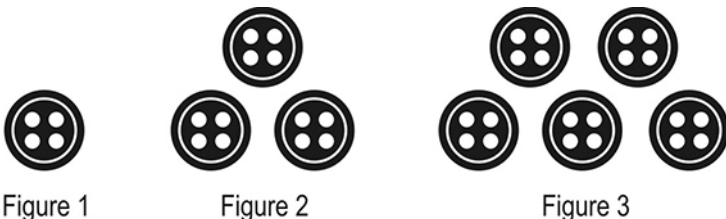
If the same pattern continues, how many buttons will be used in Figure n ?

A $3n - 2$ **B** $2n - 1$ **C** $n + 2$ **D** $n + 1$

The question tests if students can translate the given pattern into an algebraic equation. Students selecting option B have recognised the pattern correctly and found the general term. Students selecting option A have crosschecked the expression with only the first figure. Students selecting option C have thought that since the number of buttons increases by 2 in every successive figure n + 2 is the general term. Students selecting option D might have crosschecked the expression with only Figure 2.

Papercode: 27W, Question no: 17					
Performance	Option A	Option B	Option C	Option D	No. of Students
Section	10%	37%	53%	0%	30
National	20%	22%	49%	9%	6293

Q 18 For which type of quadrilateral(s) can the perimeter be calculated by knowing the length of just one of its sides?

A only a square   **B** only a square and a rectangle
C only a square and a rhombus   **D** all - a square, a rectangle and a rhombus

The question tests the understanding of perimeter and the properties of a rhombus. Students selecting option C have correctly understood that in a square and rhombus all the sides are equal and so perimeter can be calculated if one side is known. Students selecting option A might have thought that the perimeter of only a square can be calculated if one side is known as they may be used to applying the formula for this shape. Students selecting B have a lack of understanding of the properties of a rectangle and a rhombus. Students selecting option D have a lack of understanding of the properties of a rectangle.

Papercode: 27W, Question no: 18					
Performance	Option A	Option B	Option C	Option D	No. of Students
Section	53%	7%	30%	7%	30
National	37%	14%	36%	12%	6293

This section has been specially designed for you to help students practise their low-performing skills. Try these out - discuss them in class, use them to learn what most students know and do not know and then plan your lessons accordingly. Answers and explanations have also been provided. Ask a blend of high-level, low-level, open-ended and close-ended questions to activate students' thinking.

Skill: Geometry: concepts and applications (49%)

Q 1 Which of the following will change the degree measure of angle PQR?
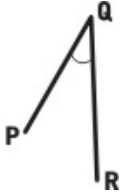
  A   rotating the entire angle PQR clockwise by 10°

  B   increasing the length of arm QP

  C   increasing the length of arm QR

  D   rotating arm QP clockwise by 10°, keeping arm QR fixed

Explanation:

D: The degree measure of ∠PQR is a measure of the amount by which you have to turn one of the arms of the angle, say PQ to coincide with the other, QR here. Increasing the length of one or both the arms of the angle does not change this. Rotating the entire angle also does not change this. But this is changed when we keep one arm fixed and rotate the other alone.

Q 2 An angle larger than a right angle, but less than a straight angle (angle of measure 180°) is called an obtuse angle.

Shown here is a circle with centre O and 9 points P, Q, R, S, T, U, V, W, X on the circle.
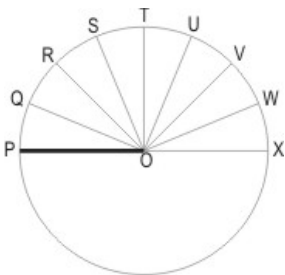
How many <u>obtuse</u> <u>angles</u> are there in the above circle such that <u>one of the arms of the angles is OP</u> and the other arm as any of the radii shown in the figure?

  A   0   **B**   1   **C**   3   **D**   4

Explanation:

C: An obtuse angle is an angle whose degree measure is greater than 90°, but less than 180°. With PO as one of the arms, we see that the measures of angles POU, POV and POW are greater than 90°, but less than 180°. So they are all obtuse angles. The measure of angle POX is 180°, so it is a straight angle and not an obtuse angle. So there are only 3 obtuse angles satisfying the given conditions.

Q 3 Shown below is a clock.
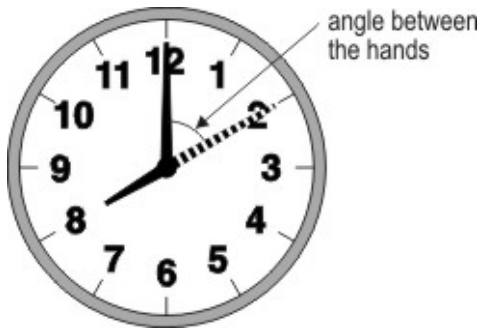
Through what angle does the MINUTE hand of a clock turn in 10 minutes?

A 10^0 **B** 30^0 **C** 45^0 **D** 60^0

Explanation:

D: In an hour, the minute hand completes one full rotation, that is, it turns through 360°. 10 minutes is one-sixth of an hour, so in 10 minutes the minute hand will turn through one-sixth of 360°, that is 60°.

Q 4 Look at the map below.

Which of these streets are perpendicular to each other?

A MG Road and LBS Marg
B Market Road and MG Road
C LBS Marg and Nehru Road
D (None of the streets shown in the map are perpendicular to each other.)

Explanation:

C: Look at the angle formed by LBS Marg and Nehru Road. Doesn't it seem like a 90° angle? So these streets are perpendicular as the angle between them is 90°. Market Road and MG Road are parallel to each other as the distance between them remains the same throughout.

Q 5 Two lines *l* and *m*, in the same plane, are NOT parallel to each other. What can be said about them?

A They will always intersect each other at 90°.
B They will intersect each other in one and only one point.
C They can intersect each other in more than one point in that plane.
D (We can't say for sure whether they will intersect each other or not.)

Explanation:

B: Two lines *l* and *m* in the same plane are said to be parallel if the distance between them remains constant throughout. So they do not intersect when extended. If the lines are not parallel then the distance between them changes. The distance keeps increasing to one side and keeps decreasing to the other side, as can be seen from the figure below.

The distance between the lines increases in this direction.
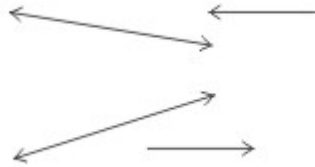
The distance between the lines decreases in this direction.

So if the lines are extended sufficiently to the side on which the distance between them decreases, at a certain stage, the distance reduces to zero, that is the lines intersect. So a pair of lines that are not parallel will definitely intersect, when extended sufficiently.

Q 6 Aastha has a circular ring of radius 10 cm. She is trying to place sticks on it in such a way that both the ends of the stick are on the ring.

What is the length of the longest stick that she can place in this way?

A 10 cm   **B** 15 cm   **C** 20 cm   **D** 25 cm

Explanation:

C: Can you see that the longest stick that can be placed with both ends on the ring will pass through the centre of the ring? So such a stick will be along the diameter of the ring. Now the length of the diameter is twice the length of the radius and so the length of the longest stick that can be placed is 2 × 10 = 20 cm.

Q 7 Isosceles triangle PQR is symmetrical about axis m.
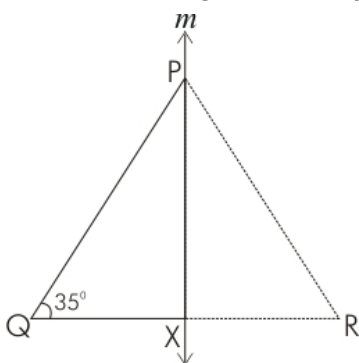
What is the measure of angle XPR?

A 35^0 **B** 55^0 **C** 70^0 **D** 77.5^0

Explanation:

B: We are told that triangle PQR is isosceles. So m∠R = 35°. The sum of the measures of the three angles in a triangle is 180°. So m∠QPR = 180 - (35 + 35) = 110°. Since the triangle is symmetrical about axis *m* , m∠QPX = m∠XPR. So each of these would be half of m∠QPR, that is, 55°.

Q 8 Shown here are two circles with centres Q and R respectively with different radii. What can be said about ΔPQR?
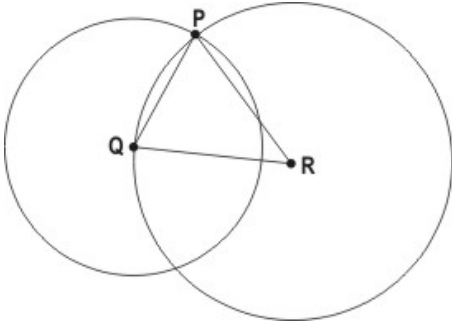
A It is a scalene triangle.
B It is an isosceles triangle.
C It is an equilateral triangle.
D (None of the above can be said as the radii of the two circles are not known.)

Explanation:

B: Since R is the centre of the larger circle, RP and RQ are radii of the circle. So they are of equal lengths. So triangle PQR has 2 equal sides and so is an isosceles triangle.

Skill: Number sense, related competency and computation skills (49%)

Q 1 Which of the following would be a correct way of calculating the value of 84560 × 72?

A adding 84500 × 72 and 60 × 72   **B** multiplying 845 × 72 and 60 × 72
C adding 845 × 72 and 60 × 72   **D** multiplying 84500+72 and 60+72

Explanation:

A: 85 × 72 is same as 85 times 72, that is 80 times 72 + 5 times 72 , that is 80 × 72 + 5 × 72, right? Similarly, 84560 × 72 is the same as 84560 times 72, that is 84500 times 72 + 60 times 72, that is 84500 × 72 + 60 × 72.

Q 2

Number P is obtained on multiplying a whole number M by 5 and then adding 6. What will be the remainder when P is divided by 5?

A 1
B 5
C 6
D Cannot be determined unless the number is known.

Explanation:

A: M is multiplied by 5 to get N. So N is a multiple of 5. Adding 6 to N is the same as adding 5 and then 1. That is P = N + 5 + 1. Now if N is a multiple of 5, are you able to see that N + 5 is a multiple of 5 too? So N + 6, or P will leave a remainder 1 when divided by 5.

Q 3 Shown below is a piece of information on the sale of passenger vehicles that appeared in a news paper.

PASSENGER VEHICLES SALES DATA (APR-DEC) (in lakhs)	
PASSENGER CARS	
2006	2007
8.8	**10.1**
UTILITY VEHICLES	
1.6	**1.7**
MULTI PURPOSE VEHICLES	
0.7	**0.6**

How many 'multi purpose vehicles' were sold in the year 2006?

A 7000 **B** 70000 **C** 700000 **D** 7000000

Explanation:

B: We see from the given information that 0.7 lakh multi purpose vehicles were sold. Now 1 lakh = 100 thousands. So 0.7 lakh is 70 thousands. ($0.7 = \frac{7}{10}$, $\frac{7}{10}$ of 100 is 70). So 70,000 multi purpose vehicles were sold.

Q 4 The numbers 0, 1, 2, 3, 4,..... etc. are called whole numbers.

For two whole numbers, θ and ♦, which of the following will DEFINITELY be a whole number?

A θ - ♦ **B** θ × ♦ **C** θ % ♦ **D** All of the above.

Explanation:

B: 3 and 4 are whole numbers. But is $\frac{3}{4}$ a whole number? No ! What about 3 – 4? Again not a whole number. So only θ × ♦ will be a whole number when θ and ♦ are whole numbers.

Q 5 Rajni noted down a friend's phone number as 246807 without realizing that she had interchanged two digits. This number exceeds the actual number by almost 6000. What is the actual phone number?

A 248607 **B** 240867 **C** 247806 **D** 264807

Explanation:

B: 246807 exceeds the actual telephone number by 6000. Since the difference is in thousands, we can conclude that the thousands digit has been interchanged. Now we need to find with which digit it has been interchanged. If it had been interchanged with 2, instead of 2 thousands we now have 6 thousands, so the number would differ by 4000. Since the difference is 6000, it has been interchanged with 0. So the actual number is 240867.

Q 6 Which of the following multiplications would give 934605 as the answer?
(*Hint: You need not actually multiply the numbers.*)

A 21 x 23 x 43 x 45 **B** 25 x 26 x 41 x 43 **C** 10 x 15 x 25 x 30 **D** 12 x 17 x 19 x 20

Explanation:

A: 934605 ends in a 5, it is an odd number and so does not have 2 as a factor. The product in option C has 10 and 30, so it will end in a 0, similarly the product in B has 20, and so would end in 0. In the product in option B, we have 25 × 26 × 41 × 43. This has 5 as a factor as 5 is a factor of 25, and has 2 as a factor as 2 is a factor of 26. So it has 10 as a factor and would end in a 0. 21 × 23 × 43 × 45 is a product of 4 odd numbers and hence is odd, and it has 5 as a factor. So it could be 934605.

Q 7 100 - ☐ > 40

Which of the following could be the number in ☐?

A 76   **B** 60   **C** 85   **D** 47

Explanation:

D: Suppose you have 100 marbles. You give away some of them. The marbles that you have remaining is greater than 40. So how many marbles did you give away? If you had given away 60, you would have 40 left. If you must have more than 40 remaining, you must give away less than 60, right? So the number in the box should be less than 60. Of the given options only 47 is less than 60.

Q 8 Which of the following numbers will decrease by 300 when the 7 in it is replaced by a 4?

A 3079   **B** 4637   **C** 5743   **D** 7340

Explanation:

C: We are told that the number decreases by 300 when 7 is replaced by 4. Since the change in the number is in hundreds, the digit changed has to be at the hundreds place. So we have to look for a number which has 7 at the hundreds place. 5743 has 7 at the hundreds place. When it is replaced by 4, we get 5443 and 5743 - 5443 = 300.When the 7 in 7340 is replaced by 4, it becomes 4340, and so decreases by 3000.