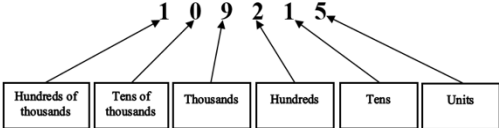
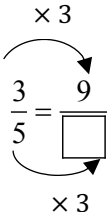
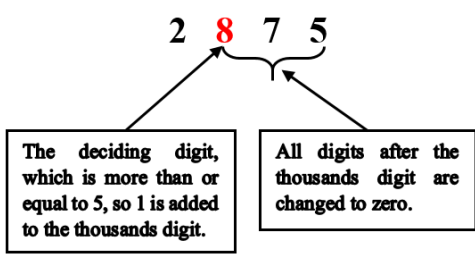
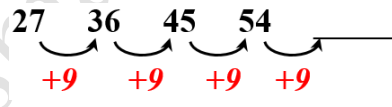

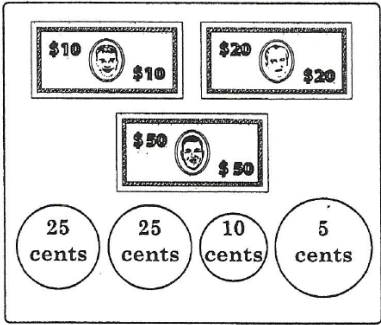

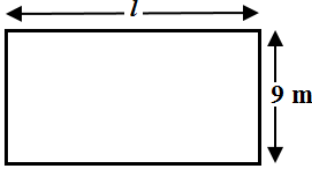
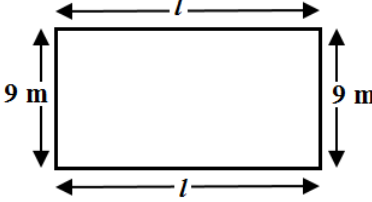
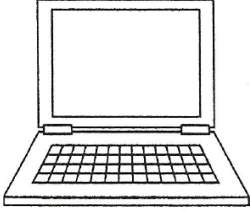


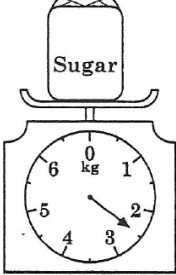
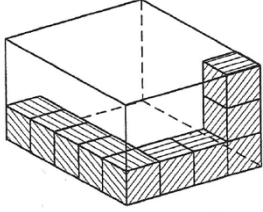
SEA MATHEMATICS YEAR 2016
SECTION I

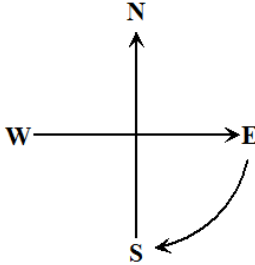
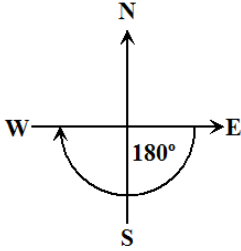
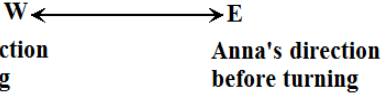
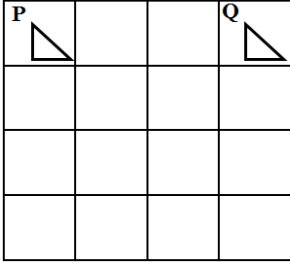
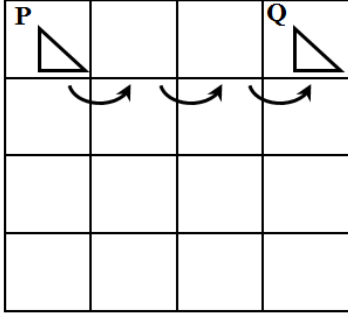
No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here																											
			KC	AT	PS																									
1.	Write in words 109 215. Answer: One hundred and nine thousand two hundred and fifteen	 <p>Hence, 109 215 is one hundred and nine thousand, two hundred and fifteen.</p>																												
2.	State the place value of the underlined digit. <u>8</u> 7 564 Answer: Tens of thousands	<p style="text-align: center;">PLACE VALUES</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">8</td> <td style="text-align: center;">7</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">4</td> </tr> <tr> <td style="text-align: center;">Tens of thousands</td> <td style="text-align: center;">Thousands</td> <td style="text-align: center;">Hundreds</td> <td style="text-align: center;">Tens</td> <td style="text-align: center;">Units</td> </tr> </table> <p>The place value of ‘8’ is tens of thousands.</p>	8	7	5	6	4	Tens of thousands	Thousands	Hundreds	Tens	Units																		
8	7	5	6	4																										
Tens of thousands	Thousands	Hundreds	Tens	Units																										
3.	$\begin{array}{r} 7215 \\ + 2456 \\ \hline \end{array}$ Answer: _____ Answer: 9 671	<table style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="text-align: center;">Th</td> <td style="text-align: center;">H</td> <td style="text-align: center;">T</td> <td style="text-align: center;">O</td> </tr> <tr> <td></td> <td></td> <td></td> <td style="text-align: center;">1</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">7</td> <td style="text-align: center;">2</td> <td style="text-align: center;">1</td> <td style="text-align: center;">5</td> </tr> <tr> <td style="text-align: center;">+</td> <td style="text-align: center;">2</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> </tr> <tr> <td></td> <td style="text-align: center;"><u>9</u></td> <td style="text-align: center;"><u>6</u></td> <td style="text-align: center;"><u>7</u></td> <td style="text-align: center;"><u>1</u></td> </tr> </table>		Th	H	T	O				1			7	2	1	5	+	2	4	5	6		<u>9</u>	<u>6</u>	<u>7</u>	<u>1</u>			
	Th	H	T	O																										
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+	2	4	5	6																										
	<u>9</u>	<u>6</u>	<u>7</u>	<u>1</u>																										
4.	$\frac{3}{5} = \frac{9}{\square}$ Answer: $\square = 15$	 <p>The equivalent fraction is obtained by multiplying both numerator and denominator by 3.</p> <p>$5 \times 3 = 15$</p>																												

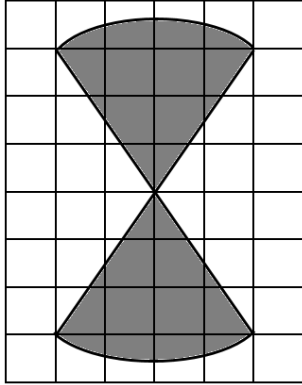
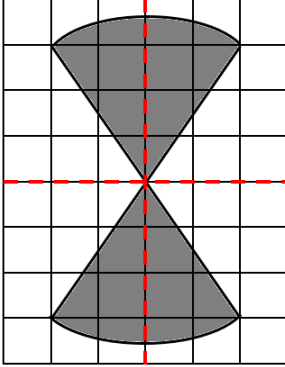
No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
5.	Write $2\frac{1}{6}$ as an improper fraction. Answer: $\frac{13}{6}$	$2\frac{1}{6} = \frac{(2 \times 6) + 1}{6}$ $= \frac{12 + 1}{6}$ $= \frac{13}{6}$ <p style="text-align: center;">OR</p> $2\frac{1}{6} = 1 + 1 + \frac{1}{6}$ $= \frac{6}{6} + \frac{6}{6} + \frac{1}{6}$ $= \frac{13}{6}$			
6.	Approximate 2 875 to the NEAREST thousand. Answer: 3 000	<div style="text-align: center;"> $2 \quad 8 \quad 7 \quad 5$  </div> <p>2 875 is 3 000 correct to the nearest thousand.</p>			
7.	Write the next term in the following sequence. 27, 36, 45, 54, _____ Answer: 63	<div style="text-align: center;"> $27 \quad 36 \quad 45 \quad 54 \quad \underline{\quad}$  </div> <p>Each term is increased by 9 from the previous term. Next term = 54</p> $\begin{array}{r} 54 \\ + 9 \\ \hline 63 \end{array}$			
8.	A baker uses 6 eggs to make a cake.  How many eggs will he use to make 9 similar cakes? Answer: 54 eggs	<p>To bake 1 cake the baker uses 6 eggs. To bake 9 cakes the baker will use 9 times as many eggs.</p> $= 6 \text{ eggs} \times 9$ $= 54 \text{ eggs.}$			

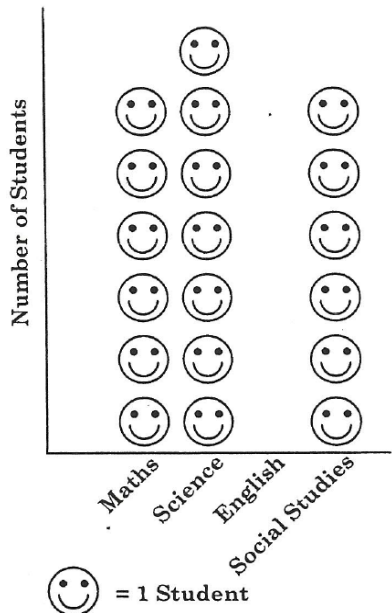
No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
9.	<p>State the TOTAL value of the bills and coins shown below.</p>  <p>Answer: \$80.65</p>	$ \begin{array}{r} 1 \times \$10 = \$10.00 \\ 1 \times \$20 = \$20.00 \\ 1 \times \$50 = \$50.00 \\ 2 \times 25 \text{ cents} = \$00.50 \quad + \\ 1 \times 10 \text{ cents} = \$00.10 \\ 1 \times 5 \text{ cents} = \$00.05 \\ \hline \text{Total} = \$80.65 \end{array} $			
10.	<p>From the list below, circle the most appropriate metric unit for measuring the volume of orange juice in the box.</p>  <p>Answer: Millilitre</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>Milligram Kilogram</p> <p>Millimetre Millilitre</p> </div>	<p>Milligram and Kilogram are measures of weight and not volume.</p> <p>Millimetre is a measure of length and not volume.</p> <p>Millilitre is a measure of volume.</p> <p>∴ The volume of orange juice is measured in millilitres.</p> <p>NOTE-milligrams, kilograms and millimetres are NOT appropriate units, so there is ONLY one appropriate unit.</p>			

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here						
			KC	AT	PS				
11.	<p>The perimeter of the rectangular field shown below is 50 m. What is the length, l, of this field?</p>  <p>Answer: 16 m</p>	 <p>The perimeter of the field = 50 $2 \times \text{length} + 2 \times \text{width} = 50$ $2 \times \text{length} + 2 \times 9 = 50$ $2 \times \text{length} + 18 = 50$ $2 \times \text{length} = 50 - 18$ $2 \times \text{length} = 32$ $\text{length} = 32 \div 2$ $\text{length} = 16$</p>							
12.	<p>The table below shows the time Diego took to run the same race in 2014 and 2015.</p> <p style="text-align: center;">Diego's Running Times</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>2014</th> <th>2015</th> </tr> </thead> <tbody> <tr> <td>1 hour 18 minutes</td> <td>1 hour 11 minutes</td> </tr> </tbody> </table> <p>In which year did Diego run the faster race?</p> <p>Answer: 2015</p>	2014	2015	1 hour 18 minutes	1 hour 11 minutes	<p>In 2014 Diego takes 1 hour 18 minutes. In 2015 Diego takes 1 hour 11 minutes.</p> <p>1 hour 11 minutes is a shorter time than 1 hour 18 minutes.</p> <p>\therefore Diego runs the race faster in 2015.</p> <p><i>NOTE-One cannot run the SAME race at two different times. Also, a race cannot be faster, however the runner can be faster.</i></p>			
2014	2015								
1 hour 18 minutes	1 hour 11 minutes								
13.	<p>Mrs. Ali bought a laptop for \$2 500 and sold it for \$2 000.</p>  <p>How much money did she lose?</p> <p>Answer: \$500</p>	<p>Cost price of laptop = \$2500 – Selling price of laptop = <u>\$2000</u> Loss = <u>\$ 500</u></p>							

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
14.	<p>The scale below shows the mass of a bag of sugar.</p>  <p>How much MORE sugar is needed to obtain a mass of 3 kg?</p> <p>Answer: $\frac{1}{2}$ kg</p>	<p>The reading on the scale indicates that the mass of sugar appears to be $2\frac{1}{2}$ kg.</p> <p>To obtain the mass of 3 kg, the amount more of the sugar required</p> $= \left(3 - 2\frac{1}{2}\right) \text{ kg}$ $= \left(\frac{6}{2} - \frac{5}{2}\right) \text{ kg}$ $= \frac{1}{2} \text{ kg}$			
15.	<p>The box below contains cubes each of side 1 cm. The box is to be filled completely with cubes of the same size.</p>  <p>How many cubes can the box hold when filled completely?</p> <p>Answer: 60 cubes</p>	<p>The length of the box holds 5 cubes. The width of the box holds 4 cubes. The height of the box holds 3 cubes.</p> <p>The number of cubes required to fill the box is $5 \times 4 \times 3 = 60$ cubes.</p> <p>Note: The cubes being of length 1 cm is irrelevant.</p>			

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
16.	<p>Anna is standing facing East. She turns in a clockwise direction and is now facing West.</p>  <p>Through how many degrees did Anna turn?</p> <p>Answer: 180 degrees</p>	  <p>Anna turned 180°.</p>			
17.	<p>A triangle was moved from Position P to Position Q as shown below.</p>  <p>What type of movement was used to move the triangle?</p> <p>Answer: Slide or translation three units to the right</p>	 <p>To move from P to Q, the triangle was slid 3 squares to the right, horizontally.</p> <p>The name of this movement is a slide or a translation.</p>			

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here																
			KC	AT	PS														
18.	<p>How many lines of symmetry are there in the shaded shape below?</p>  <p>Answer: Two</p>	 <p>The diagram has two lines of symmetry, as shown in red.</p>																	
19.	<p>The table below shows the number of goals scored in six football matches.</p> <p style="text-align: center;">Goals Scored</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Matches</th> <th>1st</th> <th>2nd</th> <th>3rd</th> <th>4th</th> <th>5th</th> <th>6th</th> </tr> </thead> <tbody> <tr> <td>Number of Goals</td> <td>4</td> <td>8</td> <td>6</td> <td>3</td> <td>6</td> <td>3</td> </tr> </tbody> </table> <p>What is the mean number of goals scored in a match?</p> <p>Answer: 5 goals</p>	Matches	1 st	2 nd	3 rd	4 th	5 th	6 th	Number of Goals	4	8	6	3	6	3	<p>Total number of goals scored $= 4 + 8 + 6 + 3 + 6 + 3$ $= 30$</p> <p>Number of matches played = 6 Mean number of goals scored in a match $= \frac{\text{Number of goals scored}}{\text{Number of matches}}$ $= \frac{30}{6}$ $= 5$ goals</p>			
Matches	1 st	2 nd	3 rd	4 th	5 th	6 th													
Number of Goals	4	8	6	3	6	3													

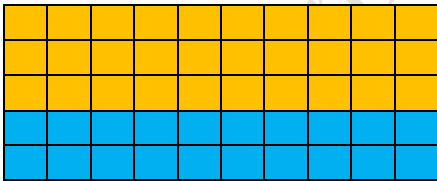
No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
20.	<p>Each of the 25 students in a class chose ONE favourite subject. The results are shown on the graph below. The number of students who chose English is not shown.</p> <p style="text-align: center;">Favourite Subjects</p>  <p>Number of Students</p> <p>Maths Science English Social Studies</p> <p>☺ = 1 Student</p> <p>How many students chose English as their favourite subject?</p> <p>Answer: 6 students</p>	<p>Number of students who chose Maths = 6 Number of students who chose Science = 7 Number of students who chose Social Studies = 6</p> <p>Total number of students who chose Maths, Science and Social Studies $= 6 + 7 + 6$ $= 19$</p> <p>Therefore the number of students who chose English $= \text{Total number of students in class} - \text{the number of students who chose Maths, Science and Social Studies}$ $= 25 - 19$ $= 6 \text{ students}$</p>			

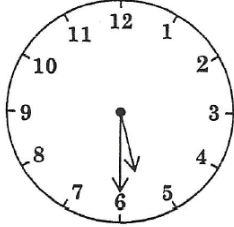

SECTION II


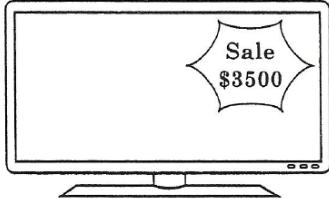
No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here																																		
			KC	AT	PS																																
21.	$3\frac{5}{8} - 1\frac{1}{4}$ Answer: $2\frac{3}{8}$	$3\frac{5}{8} - 1\frac{1}{4}$ $= 3\frac{5}{8} - 1\frac{2}{8} = 2\frac{3}{8}$																																			
22.	<p>a) Arrange the following numbers in ASCENDING order (smallest first).</p> <p>2 716, 2 617, 2 167, 2 176</p> <p>Answer: Smallest 2 167 2 176 2 617 Largest 2 716</p> <p>b) What is the LARGEST odd number in the list above?</p> <p>Answer: 2 617</p>	<p>a) All the numbers have a ‘thousands’ digit of 2. We should start at the hundreds digit.</p> <table border="1"> <thead> <tr> <th>Th</th> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>7</td> <td>1</td> <td>6</td> </tr> <tr> <td>2</td> <td>6</td> <td>1</td> <td>7</td> </tr> <tr> <td>2</td> <td>1</td> <td>6</td> <td>7</td> </tr> <tr> <td>2</td> <td>1</td> <td>7</td> <td>6</td> </tr> </tbody> </table> <p>600 < 700 So, 2617 < 2716</p> <p>2167 and 2176 have the same hundreds digit, so we look at the tens digit</p> <table border="1"> <thead> <tr> <th>Th</th> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>1</td> <td>6</td> <td>7</td> </tr> <tr> <td>2</td> <td>1</td> <td>7</td> <td>6</td> </tr> </tbody> </table> <p>60 < 70 So, 2167 < 2176</p> <p>In ascending order, we have 2167, 2176, 2617, 2716</p> <p>b) Of the two odd numbers 2 617 and 2 167, the larger one is 2617.</p>	Th	H	T	O	2	7	1	6	2	6	1	7	2	1	6	7	2	1	7	6	Th	H	T	O	2	1	6	7	2	1	7	6			
Th	H	T	O																																		
2	7	1	6																																		
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Th	H	T	O																																		
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2	1	7	6																																		
23.	<p>Students of Standard 4 planted ochro plants for their CAC project. If the plants increased in height by 0.25 metres every week, how many weeks would it take for the plants to grow to a height of 1 metre?</p> <p>Answer: 4 weeks</p>	<p>$0.25 \text{ m} = \frac{1}{4} \text{ m}$</p> <p>In 1 week plant grows $\frac{1}{4} \text{ m}$</p> <p>In 2 weeks plant grows $2 \times \frac{1}{4} \text{ m}$</p> <p>In 3 weeks plant grows $3 \times \frac{1}{4} \text{ m}$</p> <p>In 4 weeks plant grows $4 \times \frac{1}{4} \text{ m} = 1 \text{ m}$</p> <p>OR</p> <p>To grow 1 m, plants will take $1 \div \frac{1}{4} = 1 \times \frac{4}{1} = 4 \text{ weeks}$</p> <p>Note: The question stated that the plants increased in height but the original height was NOT given. We are assuming the original height is zero and calculated the number of weeks it took for the plants to grow a height of 1 metre.</p>																																			

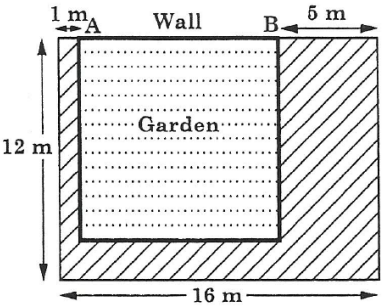
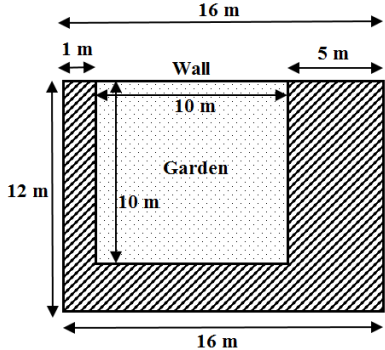
No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
24.	<p>There are 800 students in a school. If 320 are boys, what percentage of the students is girls?</p> <p>Answer: 60%</p>	<p>Number of students in the school = 800 Number of boys = 320 \therefore The number of girls = $800 - 320$ $= 480$</p> <p>Percent of girls $= \frac{\text{Number of girls}}{\text{Number of students}} \times 100$ $= \frac{480}{800} \times 100\%$ $= 60\%$</p> <p>OR</p> <p>Percent of boys = $\frac{320}{800} \times 100\%$ $= 40\%$ \therefore Percent of girls = $(100 - 40)\%$ $= 60\%$</p>			
25.	<p>In Mrs. Chin's class, $\frac{1}{3}$ of the students drank juice, $\frac{1}{4}$ of the remainder drank water and the others drank soft drinks.</p> <p>a) What fraction of the class drank water?</p> <p>Answer: $\frac{1}{6}$</p> <p>b) If there are 48 students in Mrs. Chin's class, how many students drank soft drinks?</p> <p>Answer: 24 students</p>	<p>a) Fraction that drank juice = $\frac{1}{3}$ Remainder = $1 - \frac{1}{3} = \frac{3}{3} - \frac{1}{3} = \frac{2}{3}$ $\frac{1}{4}$ of the remainder drank water. \therefore The fraction who drank water $= \frac{1}{4}$ of $\frac{2}{3}$ $= \frac{1}{4} \times \frac{2}{3} = \frac{1}{6}$</p> <p>b) The fraction who drank water = $\frac{1}{6}$ The fraction who drank juice = $\frac{1}{3}$ The fraction who drank either water or juice $= \frac{1}{3} + \frac{1}{6} = \frac{2}{6} + \frac{1}{6} = \frac{3}{6} = \frac{1}{2}$ \therefore The fraction who drank soft drinks $= 1 - \frac{1}{2} = \frac{1}{2}$ Number of students who drank soft drinks $= \frac{1}{2}(48) = 24$ students</p>			

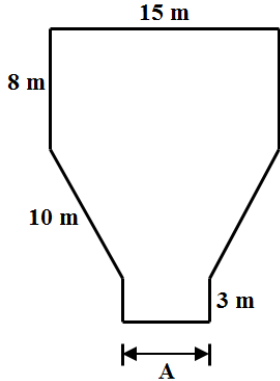
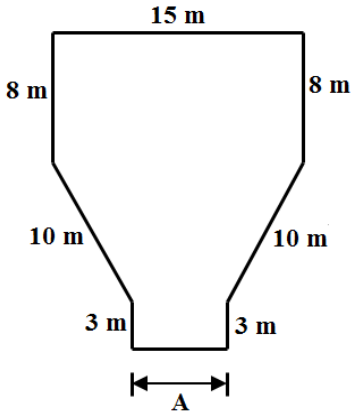
No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
26.	<p>In a school, each class has 7 charts to display on a notice board. Each chart must have 9 thumb tacks to support it.</p> <p>a) How many thumb tacks are needed if three classes have to display their charts on the notice board?</p> <p>Answer: 189 thumb tacks</p> <p>b) The three classes have a total of 171 thumb tacks. How many charts could NOT be placed on the notice board?</p> <p>Answer: 2 charts</p>	<p>a) One chart required 9 thumb tacks. Therefore, 7 charts will require 7×9 thumbtacks = 63 thumb tacks.</p> <p>Three classes will require 63×3 thumb tacks = 189 thumbs tacks</p> <p>b) The classes have a total of 171 thumb tacks and each chart uses 9. Therefore, the number of charts that can be displayed = $\frac{171}{9}$</p> $\begin{array}{r} 19 \\ 9 \overline{) 171} \\ \underline{- 9} \\ 81 \\ \underline{- 81} \\ 0 \end{array}$ <p>= 19 charts</p> <p>The total number of charts that are to be displayed by the three classes = $7 \times 3 = 21$ charts</p> <p>$\therefore 21 - 19 = 2$ charts, will not be able to be displayed.</p>			
27.	<p>The square of a number is 9 less than the sum of 28 and 45.</p> <p>What is the number?</p> <p>Answer: 8</p>	<p>The sum of 28 and 45</p> $\begin{array}{r} 28 \\ + 45 \\ \hline 73 \end{array}$ <p>9 less than 73 is $73 - 9$</p> $\begin{array}{r} 73 \\ - 9 \\ \hline 64 \end{array}$ <p>The square of the number is 64. Therefore, the number is 8, since $8 \times 8 = 64$</p>			

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
28.	<p>A class of 50 students has to perform exercises in groups of 2 OR 3 students. The number of groups with 2 students is the SAME as the number of groups with 3 students.</p> <p>a) How many groups of 2 students and 3 students can be formed?</p> <p>Answer: 20 groups</p> <p>b) Each group must use 2 balls to perform its exercise.</p> <p>What is the TOTAL number of balls needed?</p> <p>Answer: 40 balls</p>	<p>a) Groups of 2 or groups of 3 students are made. The number of groups are the same.</p> <p>One group of 2 and one group of 3 has a total of $2 + 3 = 5$ students. Therefore, the number of groups of 5 students = $\frac{50}{5} = 10$ groups.</p> <p>But each group of 5 students is made up of two groups (one with 3 and one with 2).</p>  <p>There will be 10 groups of two students and 10 groups of three students. A total of $10 + 10 = 20$ groups.</p> <p>b) Each group uses 2 balls. There are 20 groups. The total number of balls required = 20×2 = 40 balls</p>			

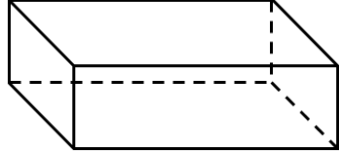
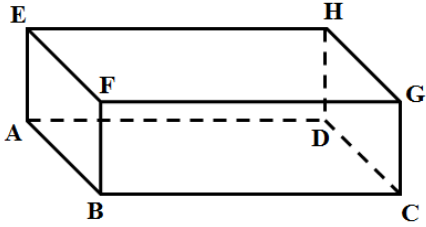
No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
29.	<p>The clock below shows the time Mark usually wakes up.</p>  <p>a) Write the time shown on the clock.</p> <p>Answer: 5:30 or half past five</p> <p>b) Mark slept for an additional 15 minutes.</p> <p>Write the time Mark awoke using digital notation.</p> <p>Answer: 5:45</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;">5 : 4 5</div>	<p>a) The hour hand is between 5 and 6. The hour is therefore after 5 but not yet 6. The minute hand is at 6. This shows 30 minutes after 5 o'clock or 5:30 or half past five.</p> <p>b) Mark slept for a further 15 minutes. ∴ Mark awoke at 5:30 $\begin{array}{r} + \quad :15 \\ \hline 5:45 \end{array}$</p>			
30.	<p>The pumpkin shown in the diagram below has a mass of 2 604 g.</p>  <p>Pumpkin</p> <p>What is the mass of the pumpkin to the nearest kilogram?</p> <p>Answer: 3 kg</p>	<p>Mass of pumpkin = 2604 g 1000 g = 1 kg</p> <p>∴ Mass of pumpkin, in kg, = $\frac{2\ 604}{1\ 000}$ kg = 2.604 kg</p> <div style="text-align: center; margin: 10px 0;"> $2 \cdot \overset{\color{red}6}{0} 4$ </div> <div style="display: flex; justify-content: space-around; margin: 10px 0;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> Add 1 to this digit. 2 + 1 = 3 </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> The deciding digit, which is more than 5. </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> The remaining digits are zero. </div> </div> <p>∴ The mass of the pumpkin, correct to the nearest kilogram, is 3 kg.</p>			



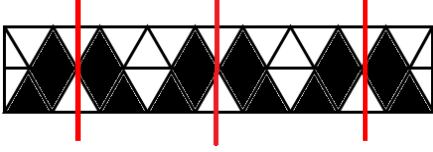
No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
31.	<p>At the airport check in counter, Camille placed the following bags on the scale.</p>  <p>What is the TOTAL mass, in kilograms, of the bags?</p> <p>Answer: 31 kg</p>	<p>Total mass of all three bags $= 4.5 \text{ kg} + 1\,500 \text{ g} + 25 \text{ kg}$</p> <p>$1\,000 \text{ g} = 1 \text{ kg}$</p> <p>$\therefore 1 \text{ g} = \frac{1}{1\,000} \text{ kg}$</p> <p>$1\,500 \text{ g} = \frac{1}{1\,000} \times 1\,500 \text{ kg}$ $= 1.5 \text{ kg}$</p> <p>For all three bags, in kg, \therefore Total mass = $\begin{array}{r} 4.5 \\ + 1.5 \\ \hline 25.0 \\ \hline 31.0 \end{array}$</p>			
32.	<p>A television costs \$5 000. During a sale, it was marked down to \$3 500.</p>  <p>a) What was the amount of the discount?</p> <p>Answer: \$1 500</p> <p>b) What was the percentage discount on the television?</p> <p>Answer: 30%</p>	<p>a) Original or marked price = \$5000 Sale price (after discount) = \$3500</p> <p>$\therefore$ Discount = $\begin{array}{r} \\$5\,000 \\ - \\$3\,500 \\ \hline \\$1\,500 \end{array}$</p> <p>Note: The cost of an item is what the purchaser pays for it (inclusive of taxes, discounts etc.) So, \$5000 is not the cost price but the original or marked price.</p> <p>b) Percentage discount $= \frac{\text{Discount}}{\text{Original price}} \times 100$ $= \frac{\\$1500}{\\$5000} \times 100\%$ $= 30\%$</p>			

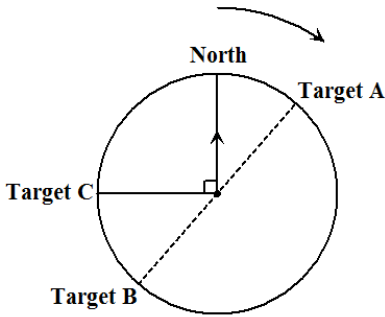
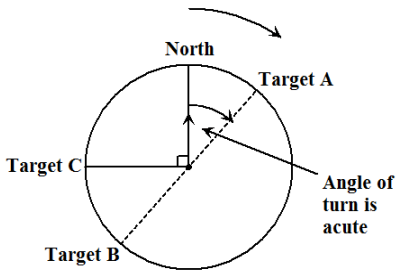
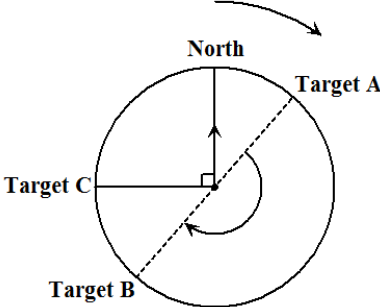
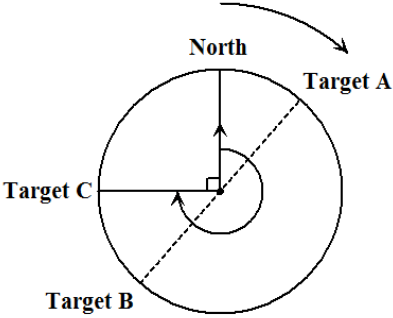
No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
	<p>c) The store adds a delivery fee of 5% of the sale price.</p> <p>Calculate the amount that a customer would pay altogether for the television.</p> <p>Answer: \$3 675</p>	<p>c) Delivery fee = 5% of \$3 500</p> $= \frac{5}{100} \times \$3500$ $= \$175$ <p>If the customer requires delivery they would have to pay</p> $\begin{array}{r} \$3\ 500 \\ + \$175 \\ \hline \$3\ 675 \end{array}$ <p>NOTE-A delivery fee is optional, so the customer really pays \$3500 for television set. What was calculated is the cost, plus delivery for a customer who chooses to pay for delivery.</p>			
33.	<p>Mrs. Jones built a square garden in her rectangular yard as shown in the diagram below. One side of the garden, AB, is against a wall.</p>  <p>a) What is the area of the garden?</p> <p>Answer: 100 m²</p> <p>b) Mrs. Jones wants to enclose the garden with a wire fence. What length of wire, in metres, is required to fence the garden?</p> <p>Answer: 30 m</p>	<p>a)</p>  <p>The length of the garden = 16 - (5 + 1) = 10 m</p> <p>Since the garden is a square, the area = (10 × 10) m² = 100 m²</p> <p>b) One side of the garden is against the wall and so we assume that it is not fenced. Therefore, the length of wire required to fence the remaining three sides of the garden = (10 + 10 + 10) m = 30 m</p>			

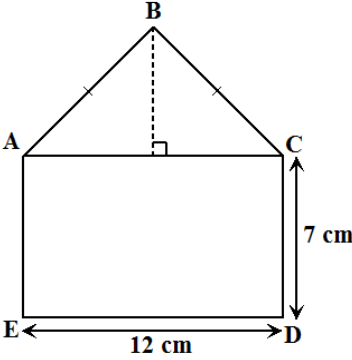
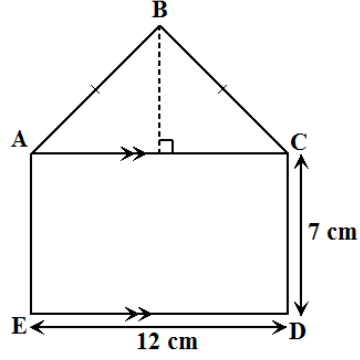
No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
34.	<p>Mari walked around the symmetrical lawn shown in the diagram below. The lawn has a perimeter of 62 m.</p>  <p>a) Calculate the length of the side marked A.</p> <p>Answer: 5 m</p> <p>b) How many times did Mari walk around the lawn if she walked a TOTAL distance of 372 m?</p> <p>Answer: 6 times</p>	<p>a)</p>  <p>Perimeter = 62 m $\therefore 15 + 8 + 10 + 3 + A$ $+ 3 + 10 + 8 = 62$ $57 + A = 62$ $A = 62 - 57$ $A = 5 \text{ m}$</p> <p>b) Distance walked = 372 m \therefore The number of times that Mari walked around the lawn $= \frac{\text{Distance walked}}{\text{Perimeter of lawn}}$ $= \frac{372}{62}$ $= 6 \text{ times}$</p>			

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
35.	<p>Ishwar has a mass of 36.4 kg.</p> <p>Tyrece's mass is $14\frac{3}{4}$kg MORE than Ishwar's.</p> <p>Jamie's mass is 3.7 kg LESS than Tyrece's.</p> <p>a) What is Tyrece's mass?</p> <p>Answer: 51.15 kg</p> <p>b) What is the TOTAL mass of the three children?</p> <p>Answer: 135 kg</p>	<p>a) Mass of Ishwar = 36.4 kg</p> <p>Mass of Tyrece = $14\frac{3}{4}$ more than 36.4 kg.</p> $\frac{3}{4} \text{ kg} = 0.75 \text{ kg}$ $14\frac{3}{4} \text{ kg} = 14.75 \text{ kg}$ <p>Mass of Tyrece = (14.75 + 36.4) kg</p> $\begin{array}{r} 14.75 \\ + 36.4 \\ \hline 51.15 \end{array}$ <p>Mass of Tyrece = 51.15 kg</p> <p>Jamie's mass is 3.7 kg LESS than Tyrece's</p> <p>b) Jamie's mass = (51.15 - 3.7) kg</p> $\begin{array}{r} 51.15 \\ - 3.70 \\ \hline 47.45 \end{array} \text{ kg}$ <p>Total mass of all children</p> $\begin{array}{r} 36.40 \\ + 51.15 \\ + 47.45 \\ \hline 135.00 \end{array} \text{ kg}$			

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here														
			KC	AT	PS												
36.	<p>The diagram below shows a shoebox without a cover.</p>  <p>Use the information above to complete the following table.</p> <table border="1" data-bbox="277 737 669 903"> <thead> <tr> <th>Number of Edges</th> <th>Number of Faces</th> <th>Number of Vertices</th> </tr> </thead> <tbody> <tr> <td>12</td> <td></td> <td></td> </tr> </tbody> </table> <p>Answer:</p> <table border="1" data-bbox="277 1003 669 1169"> <thead> <tr> <th>Number of Edges</th> <th>Number of Faces</th> <th>Number of Vertices</th> </tr> </thead> <tbody> <tr> <td>12</td> <td>5</td> <td>8</td> </tr> </tbody> </table>	Number of Edges	Number of Faces	Number of Vertices	12			Number of Edges	Number of Faces	Number of Vertices	12	5	8	 <p>The vertices are labelled for the convenience of naming.</p> <p>The edges are AE, BF, CG, DH, AB, BC, CD, DA, EF, FG, GH and HE. There are 12 edges.</p> <p>Since there is no cover, there are 5 faces. The faces are ABFE, DCGH, BCGF, ADHE and ABCD.</p> <p>The vertices are A, B, C, D, E, F, G and H. There are 8 vertices.</p>			
Number of Edges	Number of Faces	Number of Vertices															
12																	
Number of Edges	Number of Faces	Number of Vertices															
12	5	8															

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
37.	<p>The tiled corridor below shows the pattern formed by a repeated movement.</p>  <p>a) Shade in the tiles to complete the pattern.</p> <p>Answer:</p>  <p>b) What is the name of the single movement that is used to create the pattern?</p> <p>Answer: The single movement is a reflection in a vertical mirror line.</p>				

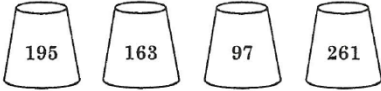

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here					
			KC	AT	PS			
38.	<p>Pete is standing, facing north, in the middle of a circular field.</p>  <p>a) Pete turns clockwise to face Target A. From the following list, circle the type of angle through which he turns.</p> <p>Answer:</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>Obtuse</td> <td>Reflex</td> <td>Acute</td> </tr> </table> <p>b) From Target A, Pete continues to turn clockwise to face Target B. Through how many right angles does he turn in this single movement?</p> <p>Answer: 2 right angles</p> <p>c) Pete continues to turn clockwise to face Target C. What is the TOTAL number of quarter-turns that Pete makes?</p> <p>Answer: 3 quarter turns</p>	Obtuse	Reflex	Acute	<p>a) The angle of turn is less than a right angle. This is an acute angle.</p>  <p>b)</p>  <p>Pete turns one half turn (or a straight angle) from A to B. 1 half turn = 2 right angles</p> <p>c)</p>  <p>To face C, Pete turns from north to west or 270° $= \frac{270^\circ}{90^\circ}$ $= 3$ quarter turns</p>			
Obtuse	Reflex	Acute						

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
39.	<p>The shape ABCDE shown below is made up of an isosceles triangle and a rectangle. The perimeter of ABCDE is 46 cm.</p>  <p>a) Which line is parallel to ED?</p> <p>Answer: AC</p> <p>b) What is the length of AB?</p> <p>Answer: 10 cm</p>	<p>a)</p>  <p>The line parallel to ED is AC. (Opposite sides of a rectangle)</p> <p>b) Perimeter of ABCDE = 46 cm $AB + BC + 7 + 12 + 7 = 46$ $AB + BC = 46 - 26$ $= 20$</p> <p>Since triangle ABC is isosceles, the length of AB is equal to the length of BC.</p> $AB = \frac{20}{2} \text{ cm}$ $= 10 \text{ cm}$			

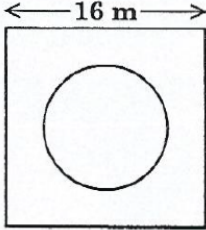
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			KC	AT	PS																
40.	<p>The 24 students in a class were asked to name their favourite snack. They chose either fruit, cake or jello.</p> <p>a) Complete the table below to show the favourite snack choices for the 24 students.</p> <p style="text-align: center;">Favourite Snacks</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Snacks</th> <th>Tally</th> </tr> </thead> <tbody> <tr> <td>Fruit</td> <td> </td> </tr> <tr> <td>Cake</td> <td></td> </tr> <tr> <td>Jello</td> <td> </td> </tr> </tbody> </table> <p>Answer:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Snacks</th> <th>Tally</th> </tr> </thead> <tbody> <tr> <td>Fruit</td> <td> </td> </tr> <tr> <td>Cake</td> <td> </td> </tr> <tr> <td>Jello</td> <td> </td> </tr> </tbody> </table> <p>b) Which snack was chosen by the LEAST number of students?</p> <p>Answer: Fruit</p>	Snacks	Tally	Fruit		Cake		Jello		Snacks	Tally	Fruit		Cake		Jello		<p>a) Number who chose fruit $= 5 + 2$ $= 7$ Number who chose Jello $= 5 + 3$ $= 8$ Number who chose Fruit and Jello $= 7$</p> $\begin{array}{r} + 8 \\ \hline 15 \end{array}$ <p>Total number of students = 24 Therefore, the number of students who chose cake $= 24$</p> $\begin{array}{r} - 15 \\ \hline 9 \end{array}$ <p>9 is represented by the tally .</p> <p>b) The snack chosen by the least number of students is fruit (7 students).</p>			
Snacks	Tally																				
Fruit																					
Cake																					
Jello																					
Snacks	Tally																				
Fruit																					
Cake																					
Jello																					

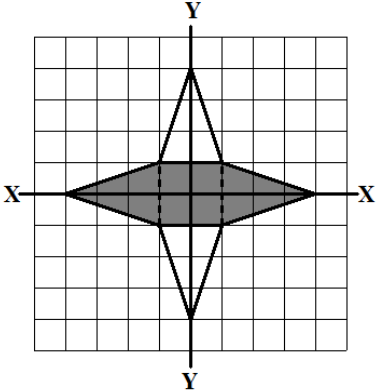
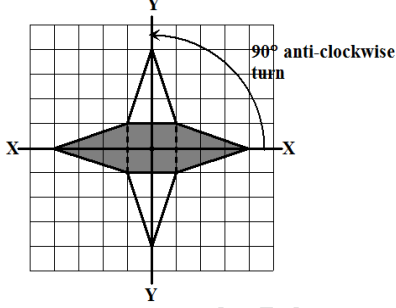
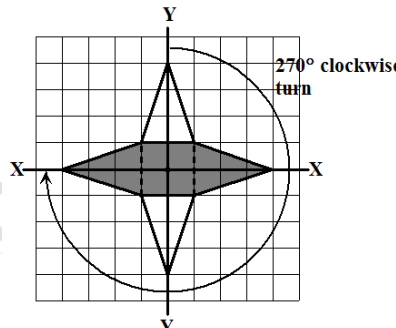
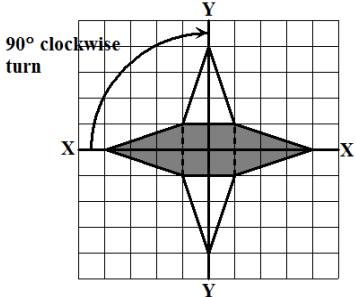
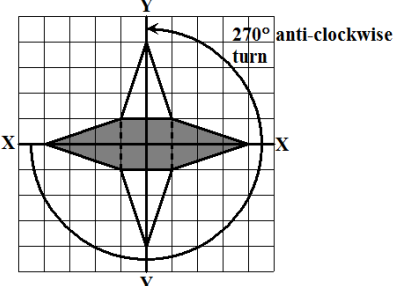
FAS-PASS
Maths
 SECTION III

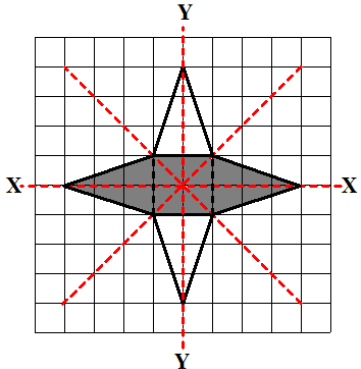
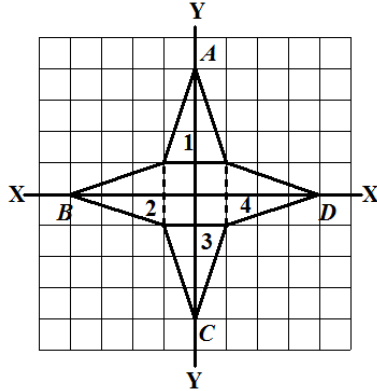
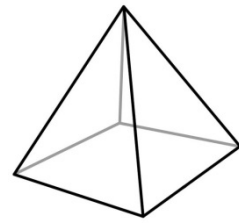
No.	TEST ITEMS	WORKING COLUMN	<i>Do Not Write Here</i>		
			KC	AT	PS
41.	<p>In one day, Factory A produces 1 650 video games, while Factory B produces 123 FEWER video games than Factory A.</p> <p>a) How many video games does Factory B produce in ONE day?</p> <p>Answer: 1 527 video games</p> <p>b) How many more video games are produced by Factory A than by Factory B in FIVE days?</p> <p>Answer: 615 more video games</p> <p>c) Factory A wants to increase its production by 10% a day. How many video games should be produced to meet this target?</p> <p>Answer: 1815 video games</p>	<p>a) Factory A produces 1 650 games. Factory B produces 123 fewer games than A. \therefore Factory B produces</p> $\begin{array}{r} 1\ 650 \\ -\ 123 \\ \hline 1\ 527 \end{array}$ <p>b) Factory A produces 123 games more per day. In five days, Factory A will produce 123×5 more games than Factory B.</p> $\begin{array}{r} 123 \\ \times\ 5 \\ \hline 615 \end{array}$ <p>615 video games</p> <p>c) Factory A produces 1 650 games per day.</p> $10\% \text{ more} = \frac{10}{100} \times 1650 = 165 \text{ games}$ <p>Therefore, Factory A needs to produce 165 more games per day.</p> <p>Factory A should produce</p> $1650 + 165 = 1815 \text{ video games per day}$			

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
42.	<p>The four cups below, with numbers, are arranged in a line as shown.</p>  <p>A person is given 3 balls to knock down any 3 cups. The numbers are added and a prize given for EXACT scores as shown below.</p>  <p>Monkey 521 Bunny 455 Bear 619</p> <p>a) Tammy knocks down 3 cups marked 195, 163 and 97. Which toy does she win?</p> <p>Answer: Bunny</p> <p>b) Shana knocks down the cups marked 97 and 261. Which cup must she now knock down to win the monkey?</p> <p>Answer: Cup marked 163</p> <p>c) Which THREE cups must Destra knock down to win the bear?</p> <p>Answer: Cups marked 195, 163 and 261</p>	<p>a) Tammy knocks down cups which totals</p> $\begin{array}{r} 195 \\ + 163 \\ \hline 97 \\ \hline 455 \end{array}$ <p>Therefore, Tammy wins the bunny.</p> <p>b) Shana knocks down cups with totals</p> $\begin{array}{r} 97 \\ + 261 \\ \hline 358 \end{array}$ <p>To win the monkey, Shana requires</p> $\begin{array}{r} 521 \\ - 358 \\ \hline 163 \end{array}$ <p>The cups that remain are marked 195 and 163. Shanna needs to knock down the cup marked 163 to win the monkey.</p> <p>c) To win the bear, Destra's must knock down three cups which must total 619.</p> $\begin{array}{r} 195 \\ + 163 \\ \hline 97 \\ \hline 455 \end{array}$ $\begin{array}{r} 195 \\ + 97 \\ \hline 261 \\ \hline 521 \end{array}$ <p>Destra must knock down the cups marked 195, 163 and 261 in order to win the bear.</p>			

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
43.	<p>Asha wants to buy a smart phone. Three stores have the model she wants advertised as follows.</p> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;">I-Shack</p> <div style="display: flex; align-items: center;"> <div> <p>Regular Price \$5800</p> <p style="border: 1px solid black; border-radius: 15px; padding: 2px; display: inline-block;">Discount 20% off</p> </div> </div> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;">Mobile-T</p> <div style="display: flex; align-items: center;"> <div> <p>Regular Price \$5610</p> <p style="border: 1px solid black; border-radius: 15px; padding: 2px; display: inline-block;">Discount $\frac{1}{3}$ off</p> </div> </div> </div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Cell-G</p> <div style="display: flex; align-items: center;"> <div> <p>Sale Price \$3860</p> </div> </div> </div> </div> <p>What is the cost of the smart phone at</p> <p>a) I-Shack?</p> <p>Answer: \$4 640</p> <p>b) Mobile-T?</p> <p>Answer: \$3 740</p> <p>c) Which of the THREE stores will give Asha the best buy?</p> <p>Answer: Mobile-T</p>	<p>a) Price of the phone at I-Shack = \$5 800 – Discount of 20% off the marked price</p> $\text{Discount} = \frac{20}{100} \times \$5\,800$ $= \$1\,160$ <p>∴ The price of the phone at I-Shack</p> $\begin{array}{r} 5\ 8\ 0\ 0 \\ - 1\ 1\ 6\ 0 \\ \hline 4\ 6\ 4\ 0 \end{array}$ <p>OR The price of the phone at I-Shack = (100 – 20)% of \$5 800 = 80% of \$5 800</p> $= \frac{80}{100} \times \$5\,800$ $= \$4\,640$ <p>b) Price of the phone at Mobile-T = \$5 610 – $\frac{1}{3}$ of \$5 610 (discount)</p> $\frac{1}{3} \text{ of } \$5\,610 = \$5\,610 \div 3$ $= \$1\,870$ <p>Price paid</p> $\begin{array}{r} = \$5\,610 \\ - \$1\,870 \\ \hline = \$3\,740 \end{array}$ <p>OR Price of the phone at Mobile-T = $\left(1 - \frac{1}{3}\right)$ of \$5 610</p> $= \frac{2}{3} \times \$5\,610 \quad (\$5610 \times 2) \div 3$ $= \$3\,740$ <p>c) The price of the phone at Cell-G is \$3 860. If ‘best buy’ is supposed to mean the lowest price, then the best buy is at Mobile-T since \$3 740 is less than both \$4 640 and \$3 860.</p>			

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44.	<p>A circular work station in a factory occupies 181 m^2 in the center of a square-shaped room as shown below. A side of the room is 16 m long.</p>  <p>Dan wants to tile the floor space around the work station.</p> <p>a) What is the area of the floor to be tiled?</p> <p>Answer: 75 m^2</p> <p>b) Dan uses square tiles of 0.6 m long. What is the LEAST number of tiles needed to cover the room completely?</p> <p>Answer: 209 tiles</p>	<p>a) Area of floor to be tiled is the area around the work station in m^2 $= \text{Area of square floor} - \text{Area of the circular work station}$ $= (16 \times 16) - 181$ $= 256 - 181$ $= 75 \text{ m}^2$</p> <p>b) Area of floor to be tiled $= 75 \text{ m}^2$ Area of one tile $= (0.6 \times 0.6) \text{ m}^2$ $= 0.36 \text{ m}^2$</p> <p>The number tiles required $75 \div 0.36 = \frac{7500}{36} = 208.33$</p> <p>The least number of tiles needed is 209.</p> <p><i>Note: The area of the work station is circular. Hence, parts of tiles will have to be used and the least number of tiles is difficult to determine.</i></p> <p><i>Also, part (b) asks for the room to be covered completely, which assumes that the work station is also to be covered. In this case, the least number of tiles can be calculated as shown:</i></p> $\frac{\text{Area of room}}{\text{Area of 1 tile}} = \frac{16 \times 16}{0.6 \times 0.6}$ $= \frac{16 \times 16}{\frac{3}{5} \times \frac{3}{5}}$ $= \frac{16 \times 16 \times 25}{9}$ $= 711.1$ <p><i>That is, the least number of tiles needed is 712.</i></p>			

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45.	<p>The shaded shape shown in the diagram below is moved from its position on the line through X to the new position (unshaded) on the line through Y.</p>  <p>a) Describe the movement of the shaded shape to its new position (unshaded).</p> <p>Answer: A turn about the origin of</p> <p>90° anti-clockwise OR 270° clockwise turn</p> <p>90° clockwise turn OR 270° anticlockwise turn</p>	<p>a) The movement can be described in any one of the four ways. In each case, the movement is a rotation about the origin.</p> <p>An anti-clockwise turn of 90°</p>  <p>OR a clockwise turn of 270°</p>  <p>A clockwise turn of 90°</p>  <p>OR an anticlockwise turn of 270°</p> 			

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	<p>b) The new position is combined with the original position to form a new shape. How many lines of symmetry does the new shape have?</p> <p>Answer: 4 lines</p>	<p>b)</p>  <p>The new figure has 4 lines of symmetry.</p>			
	<p>c) The combined shape is the net of a solid. What is the name of this solid?</p> <p>Answer: Square based pyramid</p>	<p>c)</p>  <p>By folding the four triangles, (labelled 1 to 4) along their bases so that <i>A</i>, <i>B</i>, <i>C</i> and <i>D</i> touch, a square based pyramid is formed.</p> 			

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46.	<p>After four innings of a cricket match, Bravo's mean score was 70. After the fifth inning, his mean score was increased to 72.</p> <p>a) What was his score in the fifth inning?</p> <p>Answer: 80</p> <p>b) If Bravo's next score in the sixth inning is 0, what will be his new mean score?</p> <p>Answer: 60</p>	<p>a) Bravo's mean score after 4 innings is 70.</p> <p>\therefore Total number of runs scored in 4 innings is $70 \times 4 = 280$</p> <p>Mean score after 5 innings is 72.</p> <p>\therefore Total number of runs scored after 5 innings is $72 \times 5 = 360$</p> <p>\therefore The 5th score = $360 - 280 = 80$</p> <p>b) Bravo's 6th score is 0.</p> <p>\therefore Total score after 6 innings = $360 + 0 = 360$</p> <p>New mean = $\frac{360}{6} = 60$ runs</p>			