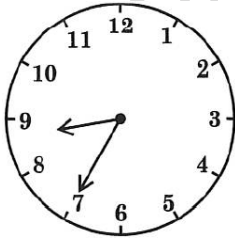
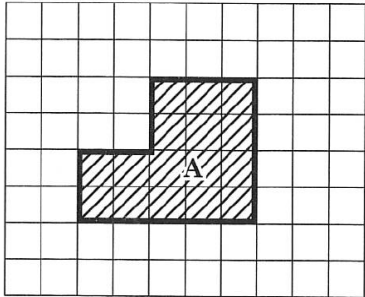




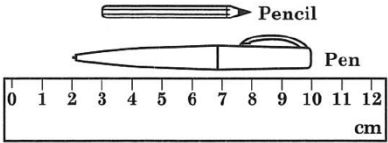
SEA MATHEMATICS YEAR 2017

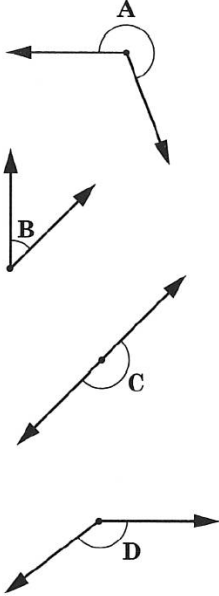
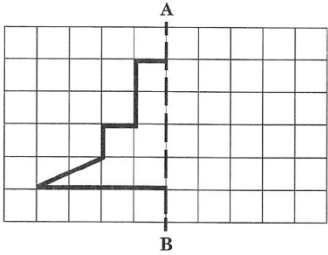
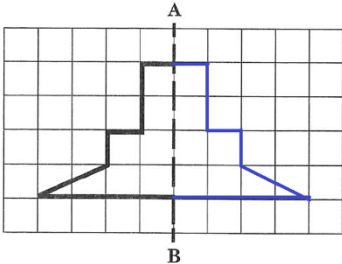
Section I

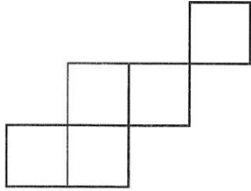
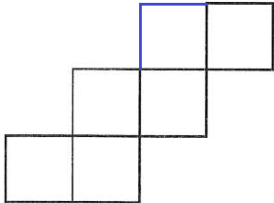
No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here																						
			KC	AT	PS																				
1.	<p>Arrange these numbers in ASCENDING order (smallest first).</p> <p>8372 8273 8237 8327</p> <p>Answer: 8237, 8273, 8327, 8372</p>	<table border="1"> <thead> <tr> <th>Th</th> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td>8</td> <td>3</td> <td>7</td> <td>2</td> </tr> <tr> <td>8</td> <td>2</td> <td>7</td> <td>3</td> </tr> <tr> <td>8</td> <td>2</td> <td>3</td> <td>7</td> </tr> <tr> <td>8</td> <td>3</td> <td>2</td> <td>7</td> </tr> </tbody> </table> <p>Consider the Hundreds position, $200 < 300$, so 8273 and 8237 must first be considered. Since $30 < 70$, $8237 < 8273$.</p> <p>By a similar argument, $8327 < 8372$. In ascending order, we have 8237, 8273, 8327, 8372</p>	Th	H	T	O	8	3	7	2	8	2	7	3	8	2	3	7	8	3	2	7			
Th	H	T	O																						
8	3	7	2																						
8	2	7	3																						
8	2	3	7																						
8	3	2	7																						
2.	<p>Write the numeral that represents six hundred and twelve thousand, nine hundred and three.</p> <p>Answer: 612 903</p>	$\begin{array}{r} 612000 \\ + \quad 900 \\ \hline 612903 \end{array}$																							
3.	<p>Subtract 2.73 from 6.94.</p> <p>Answer: 4.21</p>	$\begin{array}{r} 6.94 \\ - 2.73 \\ \hline 4.21 \end{array}$																							
4.	<p>Approximate 26387 to the nearest HUNDRED.</p> <p>Answer: 26 400</p>	<p style="text-align: center;">26 387</p> <p>We wish to express the number to the nearest hundred so we look to the right of the hundred digit to decide whether we must round up or round down.</p> <p>The digit 8 which is the tens digit is the deciding digit and we notice that $8 > 5$, so we must round up by adding 1 to the hundreds digit 3, making it 4.</p> <p>All the numbers to the right of the hundreds digit must be replaced by zero because the number is now expressed to the nearest hundred.</p>																							
5.	<p>$\sqrt{64} + 7 = 12 + \square$</p> <p>Answer: $\square = 3$</p>	<p>$\sqrt{64} + 7 = 8 + 7 = 15$</p> <p>$12 + 3 = 15$</p> <p>So $\square = 3$</p>																							

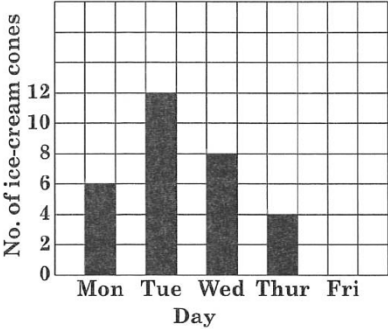
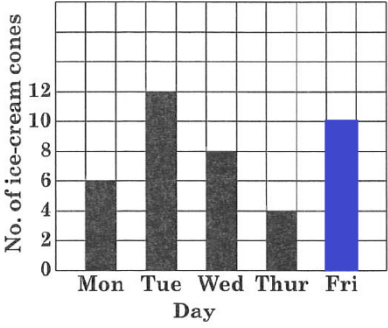
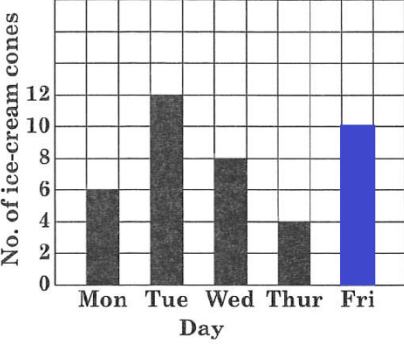
No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
6.	<p>Change $3\frac{5}{6}$ to an improper fraction.</p> <p>Answer: $\frac{23}{6}$</p>	<p>1 whole = $\frac{6}{6}$</p> <p>3 wholes = $3 \times \frac{6}{6} = \frac{18}{6}$</p> <p>$3\frac{5}{6} = 3 \text{ wholes} + \frac{5}{6} = \frac{18}{6} + \frac{5}{6} = \frac{23}{6}$</p> <p><i>Alternatively, we can use the algorithm:</i></p> $3\frac{5}{6} = \frac{(3 \times 6) + 5}{6}$ $= \frac{23}{6}$			
7.	<p>Write the next term in the sequence.</p> <p>32, 16, 8, _____</p> <p>Answer: 32, 16, 8, 4</p>	<p>We notice the following pattern:</p> $32 \xrightarrow{\div 2} 16 \xrightarrow{\div 2} 8 \xrightarrow{\div 2} 4$ <p>The next term in the sequence is 4.</p>			
8.	<p>What is 25% of 40?</p> <p>Answer: 10</p>	<p>$25\% = \frac{25}{100}$</p> <p>So, 25% of 40 is $\frac{25}{100} \times 40 = 10$</p>			
9.	<p>A clock is shown below.</p>  <p>Write the time shown on the clock in digital notation.</p> <p>Answer: 8:35</p>	<p>The hour hand is between 8 and 9. So, it is some minutes after 8 o' clock.</p> <p>The minute hand points to 7. Between 12 and 7, there are 7 five-minute intervals. So, it is $7 \times 5 = 35$ minutes past the hour.</p> <p>So, it is 35 minutes past 8 o'clock or 8:35.</p>			

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
10.	<p>2 750 g = _____ kg</p> <p>Answer: 2 750 g = 2.75kg</p>	<p>1000g = 1 kg</p> $1 \text{ g} = \frac{1}{1000} \text{ kg}$ $2750 \text{ g} = \frac{1}{1000} \times 2750 \text{ kg}$ $= 2.75 \text{ kg}$			
11.	<p>In the diagram below, each small square has an area of 9 cm².</p>  <p>Area  = 9 cm²</p> <p>Calculate the area of Shape A.</p> <p>Answer: 144 cm²</p>	<p>The shape is composed of 16 squares.</p> <p>So the area of the shape = $16 \times 9 \text{ cm}^2$</p> $= 144 \text{ cm}^2$			
12.	<p>Mala bought the items shown below.</p>  <p>Calculate the total mass of the items.</p> <p>Answer: $17\frac{1}{4}$ kg</p>	$\begin{array}{r} 10 \\ + 5\frac{1}{4} \\ \hline 2 \\ \hline 17\frac{1}{4} \end{array}$			

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
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13.	<p>The perimeter of a square is 56 cm. What is the length of one side of the square?</p> <p>Answer: 14 cm</p>	<p>Perimeter = Length of side \times 4</p> <p>Length of one side = $\frac{\text{Perimeter}}{4}$</p> <p>Length of one side of the square = $\frac{56}{4}$</p> <p style="text-align: right;">= 14 cm</p>			
14.	<p>Akeem is making juice for a class party. For every 1 litre of water, he uses 100 ml of juice mix.</p> <p>If he uses 4 litres of water, how many ml of juice does he use?</p> <p>Answer: 400 ml</p>	<p>1 litre of water requires 100 ml of mix.</p> <p>So 4 litres of water will require</p> <p>$100 \times 4 \text{ ml} = 400 \text{ ml}$ of mix.</p>			
15.	<p>The lengths of a pencil and a pen are shown below.</p>  <p>What is the difference in length between the pencil and the pen?</p> <p>Answer: 3 cm</p>	<p>Length of pen = $10 - 2$</p> <p style="text-align: right;">= 8 cm</p> <p>Length of pencil = $8 - 3$</p> <p style="text-align: right;">= 5 cm</p> <p>Difference in length between the pencil and the pen = $8 - 5 \text{ cm}$</p> <p style="text-align: right;">= 3 cm</p>			

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
16.	<p>Which of the angles below is obtuse?</p>  <p>Answer: D</p>	<p>A is reflex. B is acute. C is straight. D is obtuse.</p>			
17.	<p>Complete the shape below using AB as the line of symmetry.</p>  <p>Answer:</p> 				

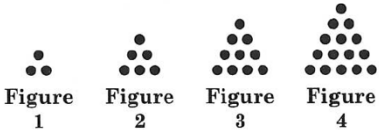
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			KC	AT	PS								
18.	<p>Complete the drawing below to show the net of a cube.</p>  <p>Answer:</p> 												
19.	<p>The table below shows the goals scored by 3 players in a football match. A total of 15 goals were scored.</p> <table border="1" data-bbox="279 1161 669 1316"> <thead> <tr> <th>Player</th> <th>Number of Goals</th> </tr> </thead> <tbody> <tr> <td>Keshore</td> <td>⊙ ⊙ ⊙</td> </tr> <tr> <td>Lester</td> <td>⊙ ⊙</td> </tr> <tr> <td>Richard</td> <td>⊙ ⊙ ⊙</td> </tr> </tbody> </table> <p>How many goals does ⊙ represent?</p> <p>Answer: 2 goals</p>	Player	Number of Goals	Keshore	⊙ ⊙ ⊙	Lester	⊙ ⊙	Richard	⊙ ⊙ ⊙	<p>The total number of ⊙ = $7\frac{1}{2}$</p> <p>So $7\frac{1}{2}$ ⊙ represents 15 goals.</p> <p>So 1 ⊙ represents $\frac{15}{7\frac{1}{2}} = 2$ goals.</p>			
Player	Number of Goals												
Keshore	⊙ ⊙ ⊙												
Lester	⊙ ⊙												
Richard	⊙ ⊙ ⊙												

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
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20.	<p>The incomplete bar graph below shows the number of ice-cream cones sold in 5 days. A total of 40 ice-cream cones were sold.</p> <p>Draw the bar to show the number of ice-cream cones sold on Friday.</p> <p style="text-align: center;">Ice-cream cones sold in five days</p>  <p style="text-align: center;">Answer:</p> 	<p>Number of cones sold on all of</p> <p>Monday = 6</p> <p>Tuesday = 12 +</p> <p>Wednesday = 8</p> <p>Thursday = 4</p> $\begin{array}{r} 30 \\ \underline{\quad} \end{array}$ <p>So the number of cones sold on Friday = 40</p> $\begin{array}{r} 40 \\ \underline{-30} \\ 10 \end{array}$ <p>The completed bar graph looks like:</p> 			

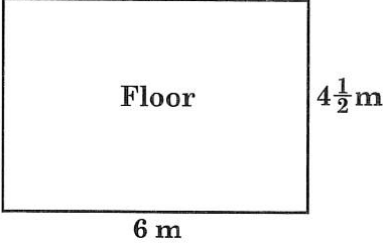
FAS-PASS
Maths
 SECTION II

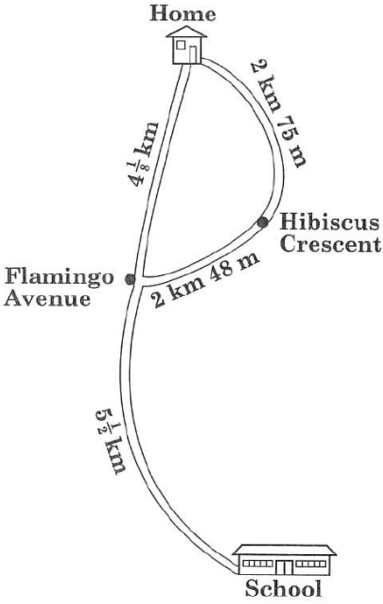
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			KC	AT	PS
21.	$3\frac{4}{5} + 2\frac{2}{3}$ <p>Answer: $6\frac{7}{15}$</p>	$3\frac{4}{5} + 2\frac{2}{3} \quad 3+2=5$ $\frac{4}{5} + \frac{2}{3} = \frac{3(4)+5(2)}{15}$ $= \frac{12+10}{15}$ $= \frac{22}{15}$ $= 1\frac{7}{15}$ <p>So $5 + 1\frac{7}{15} = 6\frac{7}{15}$</p> <p><i>Alternatively:</i></p> $\frac{4}{5} \times \frac{3}{3} = \frac{12}{15}$ $\frac{2}{3} \times \frac{5}{5} = \frac{10}{15}$ $\frac{12}{15} + \frac{10}{15} = \frac{22}{15}$ $= 1\frac{7}{15}$ $5 + 1\frac{7}{15} = 6\frac{7}{15}$			
22.	<p>Two-thirds of a number is 48. What is three-quarters of the number?</p> <p>Answer: 54</p>	<p>$\frac{2}{3}$ of the number is 48. The number is</p> $48 \div \frac{2}{3} = \frac{48}{1} \times \frac{3}{2} = 72$ $\frac{3}{4} \text{ of } 72 = \frac{3}{4} \times 72$ $= 54$ <p><i>Alternatively,</i> Two-thirds of a number is 48 One third of the number is $48 \div 2 = 24$ The whole number is: $24 \times 3 = 72$ One quarter of the number is: $72 \div 4 = 18$ Three quarters of the number is: $18 \times 3 = 54$</p>			

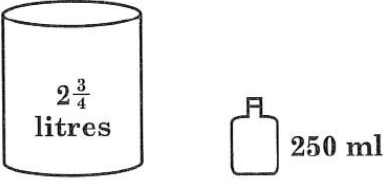
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			KC	AT	PS
23.	<p>Ryan picked a bucket of plums. He made 13 heaps. Each heap contained 6 plums and had 3 extra plums. How many plums did Ryan pick?</p> <p>Answer: 81</p>	<p>13 heaps of 6 plums will have $13 \times 6 = 78$ plums.</p> <p>If there are 3 extra plums after making the heaps, then Ryan picked $78 + 3 = 81$ plums</p> <p>(The language of the question is unclear as to whether there were 3 extra plums with every heap or there were three extra plums after all 13 heaps were made)</p>			
24.	<p>Pictures are numbered in sequence from 1 to 152. Zack is sticking 8 pictures in order on a Bristol board to form posters.</p> <p>a) How many posters can Zack make?</p> <p>Answer: 19 posters</p> <p>b) On which poster will the picture numbered 60 be found?</p> <p>Answer: 8th poster</p>	<p>a) The number of posters Zack can make is;</p> $\begin{array}{r} 8 \overline{) 152} \\ \underline{19} \\ 19 \\ \underline{190} \\ 20 \end{array}$ <p>b) Each poster has 8 pictures 1st poster will have pictures 1-8 2nd poster will have pictures 9-16 3rd poster will have pictures 17-24 4th poster will have pictures 25-32 5th poster will have pictures 33-40 6th poster will have pictures 41-48 7th poster will have pictures 49-56 8th poster will have pictures 57-64</p> <p>Since 60 is between 57-64, the picture numbered 60 will be on the 8th poster.</p>			
25.	<p>Jada is 9 years old. The sum of her parents' ages is the square of Jada's age. Her father is 11 years older than her mother.</p> <p>How old is Jada's mother?</p> <p>Answer: 35 years</p>	<p>The square of Jada's age is $9 \times 9 = 81$</p> <p>Her father is 11 years older than her mother.</p> <p>Father's age = Mother's age + 11 Both their ages total 81 Father's age + Mother's age = 81 (Mother's age + 11) + Mother's age = 81 Mother's age + Mother's age = 81 - 11 = 70 $2 \times \text{Mother's age} = 70$ Mother's age = $70 \div 2 = 35$</p> <p>So, the father will be $35 + 11 = 46$ and the mother will be 35 years old.</p>			

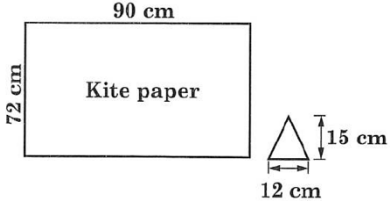
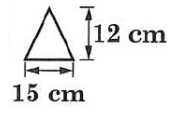
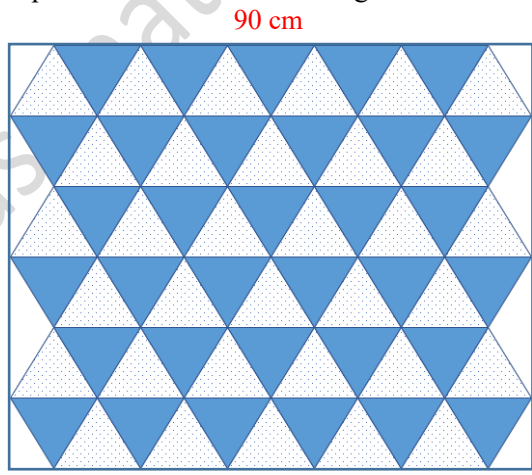
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26.	<p>A pattern is formed using dots as shown below.</p>  <p>Figure 1 Figure 2 Figure 3 Figure 4</p> <p>How many dots will form Figure 6?</p> <p>Answer: 28 dots</p>	<table border="1" data-bbox="722 331 1185 508"> <thead> <tr> <th>Figure</th> <th>No. of Dots</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>3</td> </tr> <tr> <td>2</td> <td>6</td> </tr> <tr> <td>3</td> <td>10</td> </tr> <tr> <td>4</td> <td>15</td> </tr> </tbody> </table> <p>The pattern looks like this:</p> $3 \xrightarrow{+3} 6 \xrightarrow{+4} 10 \xrightarrow{+5} 15 \xrightarrow{+6} 21 \xrightarrow{+7} 28$	Figure	No. of Dots	1	3	2	6	3	10	4	15			
Figure	No. of Dots														
1	3														
2	6														
3	10														
4	15														
27.	<p>Angeni shared a bag of mangoes with her friends. She gave $\frac{1}{5}$ to Jenny and $\frac{1}{3}$ of the remainder to Paul.</p> <p>a) What fraction of the mangoes did Paul get?</p> <p>Answer: $\frac{4}{15}$</p> <p>b) What fraction of the mangoes did Angeni give her friends?</p> <p>Answer: $\frac{7}{15}$</p>	<p>a) Consider the whole as 1.</p> <p>$\frac{1}{5}$ is given to Jenny.</p> $\text{Remainder} = 1 - \frac{1}{5}$ $= \frac{5}{5} - \frac{1}{5}$ $= \frac{4}{5}$ <p>Paul got</p> $\frac{1}{3} \text{ of remainder} = \frac{1}{3} \times \frac{4}{5}$ $= \frac{4}{15}$ <p>b) If the friends were only Jenny and Paul, then Angeni gave away $\frac{1}{5}$ to Jenny and $\frac{4}{15}$ to Paul.</p> <p>The fraction that she gave away is</p> $\frac{1}{5} + \frac{4}{15}$ $\frac{3 + 4}{15} = \frac{7}{15}$ <p>(Note: It is NOT the fraction of the mangoes but the fraction of the total number of mangoes)</p>													

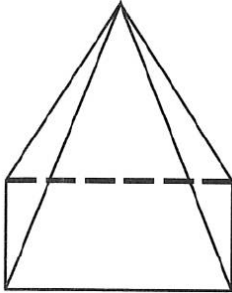
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28.	<p>There are 300 students in an auditorium. Of these, 210 are boys.</p> <p>a) What percentage of the students is girls?</p> <p>Answer: 30%</p> <p>b) If 60% of the students leave the auditorium, how many students are left?</p> <p>Answer: 120 students</p>	<p>a) Number of students = 300 Number of boys = 210 Number of girls = 300 $\begin{array}{r} 300 \\ - 210 \\ \hline 90 \end{array}$</p> <p>Percent that are girls = $\frac{90}{300} \times 100$ $= 30\%$</p> <p><i>Alternatively:</i></p> <p>Percent that are boys = $\frac{210}{300} \times 100$ $= 70\%$ Percent that are girls $= (100 - 70)\%$ $= 30\%$</p> <p>b) 60% of the 300 = $\frac{60}{100} \times 300$ $= 180$ 180 left the auditorium. The number of students that remained in the auditorium: $\begin{array}{r} 300 \\ - 180 \\ \hline 120 \end{array}$</p>			
29.	<p>Mrs. Jones borrowed \$10 000 from a bank. She has to repay the loan in 7 years at a rate of 12% interest per annum.</p> <p>a) Calculate the simple interest Mrs. Jones must pay.</p> <p>Answer: \$8 400</p> <p>b) What is the total amount of money that Mrs. Jones must repay?</p> <p>Answer: \$18 400</p>	<p>a) $S.I. = \frac{PRT}{100}$ $= \frac{\\$10\,000 \times 12 \times 7}{100}$ $= \\$8\,400$</p> <p>b) Amount to repay $= \text{Principal} + \text{Interest}$ $= 10\,000$ $+ 8\,400$ $\begin{array}{r} 10\,000 \\ + 8\,400 \\ \hline 18\,400 \end{array}$</p>			

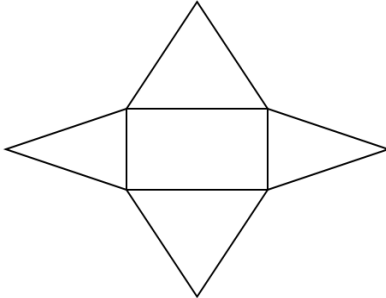
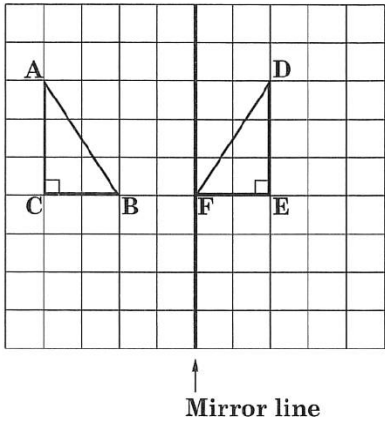
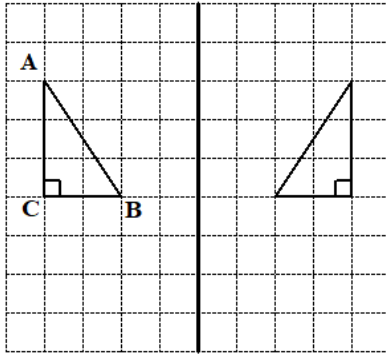
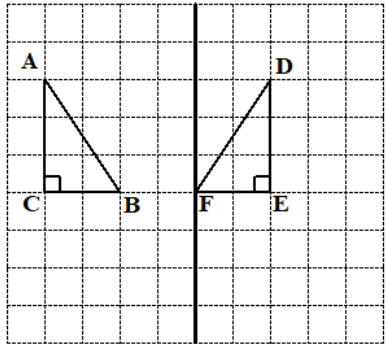
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			KC	AT	PS
30.	<p>The floor shown below is to be carpeted.</p>  <p style="text-align: center;">Floor</p> <p style="text-align: center;">6 m</p> <p style="text-align: right;">$4\frac{1}{2}$ m</p> <p>a) Calculate the area of the floor.</p> <p>Answer: 27 m^2</p> <p>b) If the carpet is sold at \$20 per m^2, calculate the cost of the carpet needed to cover the floor completely.</p> <p>Answer: \$540</p>	<p>a) Area of floor = $6 \times 4\frac{1}{2}$</p> $= \frac{6}{1} \times \frac{9}{2}$ $= 27 \text{ m}^2$ <p>b) Cost of carpet</p> $= \text{Area of floor in } \text{m}^2$ $\times \text{Cost of carpet per } \text{m}^2$ $= 27 \times \$20$ $= \$540$			

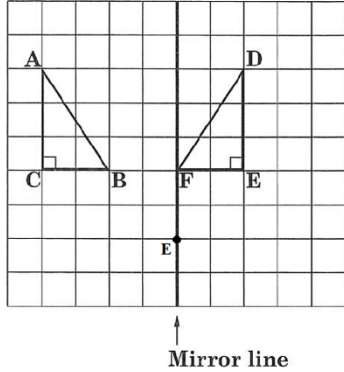
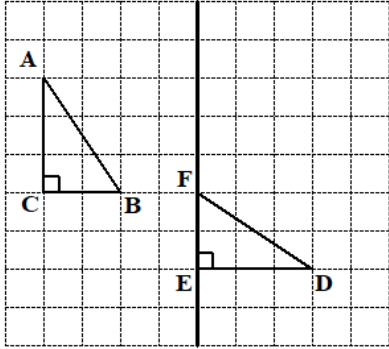
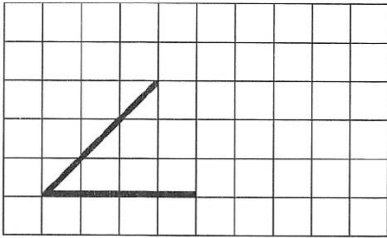
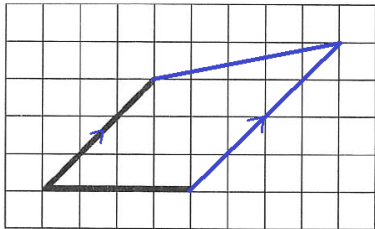
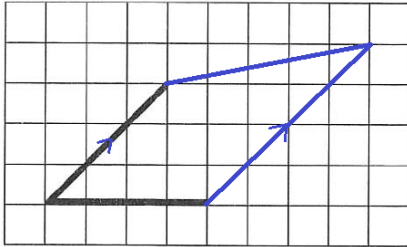
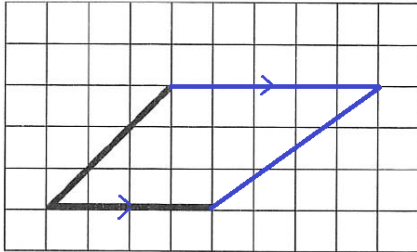
No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here												
			KC	AT	PS										
31.	<p>The routes from Aaron's home to his school are shown below.</p>  <p>What is the SHORTEST distance from Aaron's home to his school?</p> <p>Answer: 9 km 623 m</p>	<p>From the diagram the distance from home → Flamingo Avenue → School is</p> $= 4\frac{1}{8} + 5\frac{1}{2}$ $= 4 + 5 + \frac{1}{8} + \frac{1}{2}$ $= 9 + \frac{1+4}{8}$ $= 9\frac{5}{8} \text{ km}$ $\frac{5}{8} \text{ km} = \frac{5}{8} \times 1000 = 625 \text{ m}$ $9\frac{5}{8} = 9 \text{ km } 625 \text{ m}$ <p>The distance from home → Hibiscus Crescent → Flamingo Avenue → School is (2 km 75m + 2 km 48m + 5½ km).</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: right;">= km</td> <td style="text-align: right;">m</td> </tr> <tr> <td style="text-align: right;">2</td> <td style="text-align: right;">75</td> </tr> <tr> <td style="text-align: right;">+ 2</td> <td style="text-align: right;">48</td> </tr> <tr> <td style="text-align: right; border-top: 1px solid black;">5</td> <td style="text-align: right; border-top: 1px solid black;">500</td> </tr> <tr> <td style="text-align: right; border-top: 1px solid black;">9</td> <td style="text-align: right; border-top: 1px solid black;">623</td> </tr> </table> $\frac{1}{2} \text{ km} = \frac{1}{2} \times 1000 \text{ m}$ $= 500 \text{ m}$ <p>Note: Since there are two routes, the word should be SHORTER not SHORTEST. Also, the diagram is misleading since the straight path between two points cannot be longer than a curved path between the same two points.</p>	= km	m	2	75	+ 2	48	5	500	9	623			
= km	m														
2	75														
+ 2	48														
5	500														
9	623														
32.	<p>A phone company's rates for prepaid calls are shown below.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Day Rate</td> <td>\$0.40 per minute</td> </tr> <tr> <td>Night Rate</td> <td>\$0.25 per minute</td> </tr> </table> <p>Cindy spoke to her friend for 20 minutes during the day and 50 minutes in the night. What is the total cost of the calls?</p> <p>Answer: \$20.50</p>	Day Rate	\$0.40 per minute	Night Rate	\$0.25 per minute	<p>20 minutes at \$0.40 per minute</p> $= \$0.40 \times 20 = \8.00 <p>50 minutes at \$0.25 per minute</p> $= \$0.25 \times 50 = \12.50 <p>Total cost of the calls = \$8.00 + \$12.50</p> $= \$20.50$									
Day Rate	\$0.40 per minute														
Night Rate	\$0.25 per minute														

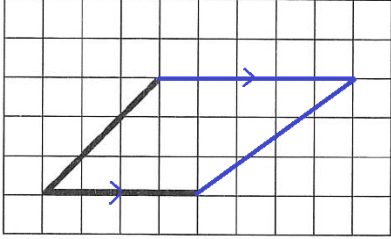
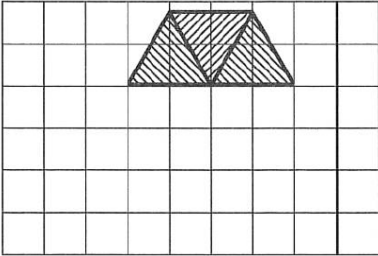
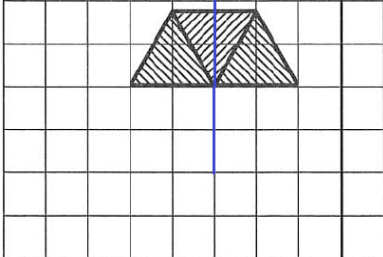
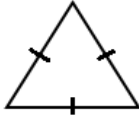
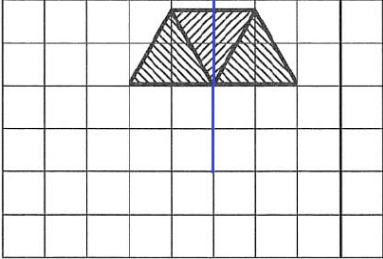
No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
33.	<p>A container and a bottle are shown below.</p>  <p>Jamie is filling the container with water using the bottle.</p> <p>How many bottles of water does she need to fill the container completely?</p> <p>Answer: 11 bottles</p>	$2\frac{3}{4} \text{ litres} = 2\frac{3}{4} \times 1\,000 \text{ ml} = 2\,750 \text{ ml}$ <p>No. of bottles required</p> $= \frac{\text{Volume of the container}}{\text{Volume of the bottle}}$ $= \frac{2\,750}{250}$ $= \frac{275}{25}$ $= \frac{55}{5}$ $= 11 \text{ bottles}$			

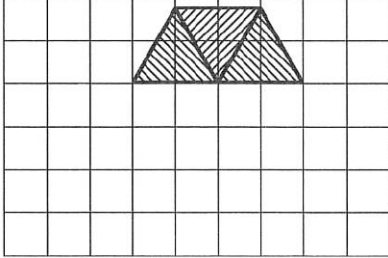
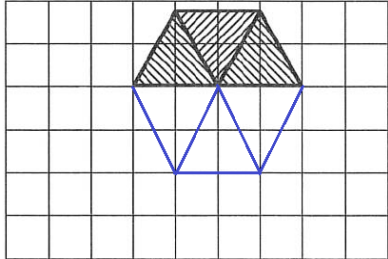
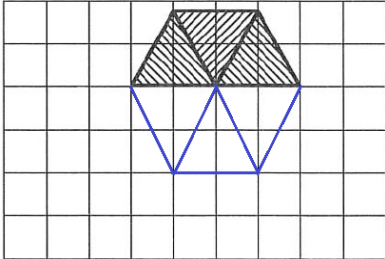
No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
34.	<p>The diagram below shows a piece of kite paper that is to be cut into triangular flags. Each flag has a base of 15 cm and a height of 12 cm.</p>  <p>a) What is the greatest number of flags that can be made from the sheet of kite paper?</p> <p>Answer: 66 flags</p> <p>b) Andrew wants to make 144 flags. How many sheets of kite paper will he need?</p> <p>Answer: 3 sheets</p>	<p>a) The dimensions of the flag stated in the introduction differ from the dimensions shown in the diagram. Using the data stated in the introduction, the flag would look like:</p>  <p>This question cannot be solved by dividing the area of the kite paper by the area of one flag ($6480 \div 90 = 72$ flags), because in practice, it is impossible to layout the flags and have no wastage.</p> <p>The layout that would give the greatest number of flags is shown below. There are 66 flags in all with eleven in each row. Notice that in each row there is wastage at both ends. The wastage (unshaded area) is equivalent to the area of 6 flags.</p>  <p>b) To make 144 flags, Andrew would require $\frac{144}{66} = 2\frac{2}{11}$ or 3 sheets of kite paper (Kite paper is sold in sheets)</p> <p>Note: The area used for 66 flags is $90\text{ cm}^2 \times 66 = 5940\text{ cm}^2$ The area wasted is $6480 - 5940\text{ cm}^2 = 540\text{ cm}^2$, which is equivalent to 6 flags (90×6).</p>			

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
35.	<p>Wendy has 10 kg of flour. She used 2 kg 675 g to make a batch of bread and 1 kg 970 g to make a batch of cakes.</p> <p>a) How much flour does Wendy use altogether?</p> <p>Answer: 4 kg 645 g</p> <p>b) How much flour does she have remaining?</p> <p>Answer: 5 kg 355 g</p> <p>c) How many batches of cake can Wendy make with the remaining flour?</p> <p>Answer: 2 batches</p>	<p>a) Amount of flour used for bread and cakes</p> $ \begin{array}{r} = \text{kg} \quad \text{g} \\ 2 \quad 675 \\ + 1 \quad 970 \\ \hline 3 \quad 1645 \\ \hline 1 \text{ kg } 645 \text{ g} \\ = 4 \text{ kg } 645 \text{ g} \end{array} $ <p>b) Remainder of flour</p> $ \begin{array}{r} = \text{kg} \quad \text{g} \\ 10^9 \quad 1000+0 \\ - 4 \quad 645 \\ \hline 5 \quad 355 \end{array} $ <p>c) Number of batches of cake that can be made</p> $ \begin{array}{l} = \frac{\text{Amount of flour remaining}}{\text{Amount of flour required per batch}} \\ = \frac{5 \text{ kg } 355 \text{ g}}{1 \text{ kg } 970 \text{ g}} \\ = \frac{5355}{1970} \\ = 2 \text{ remainder } 1415 \text{ g} \end{array} $			
36.	<p>a) Name the solid below.</p>  <p>Answer: Rectangular-based pyramid</p>	<p>a) The base appears to be a rectangle. The solid will be a rectangular-based pyramid.</p>			

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
	<p>b) Draw the net of the solid.</p>	<p>b) The net looks like:</p> <p>Answer:</p> 			
37.	<p>The diagram below shows triangle ABC and its image after two movements.</p>  <p>a) The first movement of triangle ABC is a flip about the mirror line.</p> <p>Describe fully the second movement.</p> <p>Answer: A slide or translation of 2 units horizontally to the left</p>	<p>a) The first movement shows the figure below.</p>  <p>The image after the second movement is shown below.</p>  <p>To describe the second movement we observe that the image DEF slid 2 units horizontally to the left. This movement is called a translation.</p>			

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
	<p>b) Triangle DEF makes a quarter turn about point F in a clockwise direction. On the diagram, mark the new position of E.</p> <p>Answer:</p> 	<p>b) Triangle DEF makes a quarter turn about point F in a clockwise direction, its new position is shown below.</p> 			
38.	<p>There is an incomplete quadrilateral on the grid below.</p>  <p>The quadrilateral has only one pair of parallel lines.</p> <p>Complete the shape.</p> <p>Answer:</p>  <p>or</p>	<p>Since the diagram shows an incomplete quadrilateral, then the two given lines may even be extended.</p> <p>Either of the given lines may be extended and any one drawn parallel to the line opposite to it. For example, either</p>  <p>or</p> 			

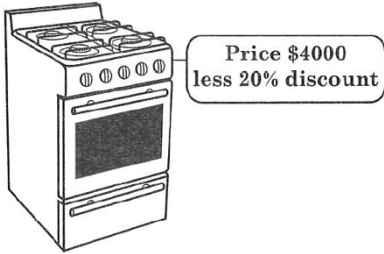
No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
					
39.	<p>Tia has 3 similar triangles. Each triangle has 3 equal sides.</p> <p>a) Name the type of triangle that Tia has.</p> <p>Answer: Equilateral</p> <p>b) Tia joins the 3 triangles to form the shape shown below.</p>  <p>Draw the line of symmetry on the shape.</p> <p>Answer:</p>  <p>c) Tia joins 3 other similar triangles to the shape to form a regular six-sided polygon. Complete the shape below.</p>	<p>a)</p>  <p>A triangle with 3 equal sides is equilateral.</p> <p>b) The line of symmetry is shown on the diagram below.</p> 			

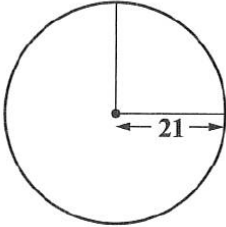
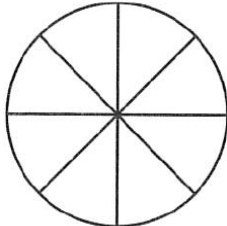
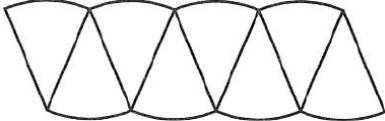
No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here																																
			KC	AT	PS																														
	 <p>Answer:</p> 	<p>c) The completed regular polygon is shown below.</p> 																																	
40.	<p>The tally chart below shows the votes obtained by 4 students for the post of class prefect.</p> <table border="1" data-bbox="279 1134 669 1360"> <thead> <tr> <th>Student</th> <th>Tally</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>Karen</td> <td> </td> <td>6</td> </tr> <tr> <td>Atiba</td> <td> </td> <td>4</td> </tr> <tr> <td>Satesh</td> <td></td> <td></td> </tr> <tr> <td>Martin</td> <td> </td> <td>11</td> </tr> </tbody> </table> <p>If 28 students voted, complete the tally and frequency for Satesh.</p> <p>Answer:</p> <table border="1" data-bbox="279 1495 669 1747"> <thead> <tr> <th>Student</th> <th>Tally</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>Karen</td> <td> </td> <td>6</td> </tr> <tr> <td>Atiba</td> <td> </td> <td>4</td> </tr> <tr> <td>Satesh</td> <td> </td> <td>7</td> </tr> <tr> <td>Martin</td> <td> </td> <td>11</td> </tr> </tbody> </table>	Student	Tally	Frequency	Karen		6	Atiba		4	Satesh			Martin		11	Student	Tally	Frequency	Karen		6	Atiba		4	Satesh		7	Martin		11	<p>The number of votes secured by</p> <p>Karen 6</p> <p>Atiba 4 +</p> <p>Martin $\begin{array}{r} 11 \\ 21 \\ \hline \end{array}$</p> <p>Satesh would have received</p> <p> 28</p> <p>– 21</p> <p> 7</p>			
Student	Tally	Frequency																																	
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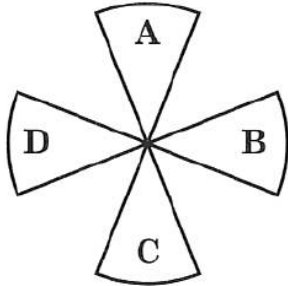
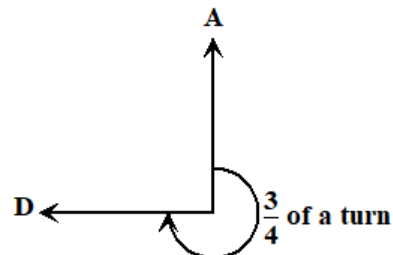
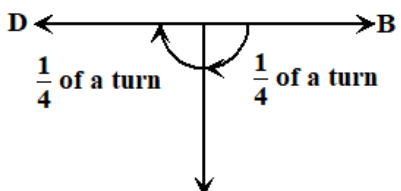
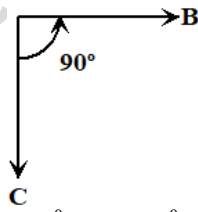
Section III

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here														
			KC	AT	PS												
41.	<p>Five runners competed in a race on sports day. The table below shows the times recorded for 4 runners.</p> <table border="1"> <thead> <tr> <th>Runner</th> <th>Time (seconds)</th> </tr> </thead> <tbody> <tr> <td>Pete</td> <td>16.5</td> </tr> <tr> <td>Mark</td> <td>17.8</td> </tr> <tr> <td>Toro</td> <td>16.9</td> </tr> <tr> <td>Sunil</td> <td>16.8</td> </tr> <tr> <td>Javed</td> <td></td> </tr> </tbody> </table> <p>a) Calculate the average running time for the FOUR given runners.</p> <p>Answer: 17.0 seconds</p> <p>b) Javed won the race by 0.3 seconds. What was his winning time?</p> <p>Answer: 16.2 seconds</p> <p>c) The winning time in last year's race was 16.3 seconds. What is the least amount of time by which Mark must improve to beat last year's winning time?</p> <p>Answer: 1.6 seconds to the nearest second.</p>	Runner	Time (seconds)	Pete	16.5	Mark	17.8	Toro	16.9	Sunil	16.8	Javed		<p>a) Total time by the four given runners</p> $\begin{array}{r} 16.5 \\ + 17.8 \\ 16.9 \\ \hline 68.0 \end{array}$ <p>Average time = $68 \div 4$ = 17</p> <p>b) The shortest time among the 4 given runners is 16.5 seconds. Since Javed won by 0.3 seconds, Javed's time</p> $\begin{array}{r} 16.5 \\ - 0.3 \\ \hline 16.2 \end{array}$ <p>c) The difference between Mark's time and last year's winning time</p> $\begin{array}{r} 17.8 \\ - 16.3 \\ \hline 1.5 \end{array}$ <p>Note: A time of 1.5 seconds would equal last year's winning time. To win, Mark must improve by greater than 1.5 seconds. It is impossible to write the least amount of time as this could be 1.51, 1.501, ... Anytime greater than 1.5 seconds will be correct. However, since all measures were given to one decimal place, we choose to write the least amount of time as 1.6 seconds.</p>			
Runner	Time (seconds)																
Pete	16.5																
Mark	17.8																
Toro	16.9																
Sunil	16.8																
Javed																	

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here					
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42.	<p>There are 450 mangoes and oranges in a fruit stall. There are twice as many mangoes as there are oranges.</p> <p>a) How many oranges are in the stall?</p> <p>Answer: 150 oranges</p> <p>b) $\frac{2}{3}$ of the oranges are green and others are ripe.</p> <p>How many oranges are ripe?</p> <p>Answer: 50 oranges</p> <p>c) A box can hold 24 mangoes. How many boxes are needed to pack ALL the mangoes?</p> <p>Answer: 13 boxes</p>	<p>a) There are twice as many mangoes as oranges.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>m</td> <td>m</td> <td>o</td> </tr> </table> <p>Hence, $\frac{2}{3}$ of the 450 fruits are mangoes and $\frac{1}{3}$ of 450 fruits are oranges.</p> <p>So, there are $\frac{1}{3} \times 450 = 150$ oranges in the fruit stall.</p> <p>b) $\frac{2}{3}$ of the oranges are green.</p> <p>$\therefore \frac{1}{3}$ of the oranges are ripe.</p> <p>No. of ripe oranges = $\frac{1}{3} \times 150$ = 50</p> <p>c) Number of mangoes = 300</p> <p>Number of boxes required = $\frac{300}{24}$ = 12.5</p> <p>So, 13 boxes will be required, though the 13th box will not be completely filled.</p> <p>Note: There is some ambiguity in the wording of part (a) of this question. It would have been better to say: In a fruit stall, only mangoes and oranges are sold. There are 450 fruits in all and the number of mangoes is twice the number of oranges.</p>	m	m	o			
m	m	o						

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
43.	<p>Mrs. Brown bought the stove shown below at a discount of 20%.</p>  <p>a) Calculate the discount in dollars.</p> <p>Answer: \$800</p> <p>b) What was the cost of the stove after the discount?</p> <p>Answer: \$3 200</p> <p>c) Mrs. Brown paid VAT at $12\frac{1}{2}\%$ on the discounted price.</p> <p>How much VAT did she pay?</p> <p>Answer: \$400</p> <p>d) Calculate the final price that Mrs. Brown paid for the stove.</p> <p>Answer: \$3 600</p>	<p>a) Discount = 20% of \$4000</p> $= \frac{20}{100} \times \4000 $= \$800$ <p>b) Cost after discount</p> $= \text{Marked price} - \text{Discount}$ $= \$4000$ $- \$800$ <hr style="width: 10%; margin-left: 0;"/> $\$3200$ <p>c) VAT = $12\frac{1}{2}\%$ of \$3200</p> $= \frac{12\frac{1}{2}}{100} \times \3200 $= \frac{1}{8} \times \$3200$ $= \$400$ <p>d) Final price</p> $= \$3200$ $+ \$400$ <hr style="width: 10%; margin-left: 0;"/> $\$3600$			

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
44.	<p>A circle of radius 21 cm is shown below.</p>  <p>$\pi = \frac{22}{7}$</p> <p>a) Calculate the circumference of the circle.</p> <p>Answer: 132 cm</p> <p>b) The circle is cut into 8 equal parts as shown below.</p>  <p>The parts are used to form the shape below.</p>  <p>Calculate the perimeter of the shape.</p> <p>Answer: 174 cm</p>	<p>a) Circumference = $2\pi r$ $= 2 \times \frac{22}{7} \times 21$ cm $= 132$ cm</p> <p>b) The length of all eight curved edges of the shape total 132 cm. The two straight outer edges are 21 cm each. Perimeter of shape = $132 + 21 + 21$ $= 174$ cm</p>			

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here		
			KC	AT	PS
45.	<p>The diagram below shows the blades of a fan labelled A, B, C and D.</p>  <p>a) What fraction of a turn does Blade A make if it turns in a clockwise direction to the position of Blade D?</p> <p>Answer: $\frac{3}{4}$</p> <p>b) How many $\frac{1}{4}$ turns does Blade B make if it turns in a clockwise direction to the position of Blade D?</p> <p>Answer: 2</p> <p>c) Through how many degrees does Blade C turn in an anti-clockwise direction to the position of Blade B?</p> <p>Answer: 90°</p> <p>d) If Blade B travels 200 cm in 1 whole turn, how many $\frac{1}{2}$ turns will it take to make 300 cm?</p> <p>Answer: 3</p>	<p>a)</p>  <p>b)</p>  <p>Two $\frac{1}{4}$ turns to move from B to D</p> <p>c)</p>  <p>$\frac{1}{4}$ turn = $360^\circ \div 4 = 90^\circ$</p> <p>d)</p> <p>200 cm = 1 turn $1 \text{ cm} = \frac{1}{200}$ turn $300 \text{ cm} = \frac{1}{200} \times 300$ turn = 1.5 turns = 1.5 \times 2 half turns = 3 half turns</p> <p>OR</p> <p>200 cm \rightarrow 1 whole turn 100 cm \rightarrow 1 half turn 300 cm \rightarrow 3 half turns</p>			

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here																							
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46.	<p>The table below shows the marks obtained by 2 students in 5 subjects.</p> <table border="1"> <thead> <tr> <th>SUBJECT</th> <th>YVETTE</th> <th>BARRY</th> </tr> </thead> <tbody> <tr> <td>Maths</td> <td>75</td> <td>63</td> </tr> <tr> <td>Language Arts</td> <td>60</td> <td>74</td> </tr> <tr> <td>Music</td> <td>70</td> <td></td> </tr> <tr> <td>Art</td> <td>80</td> <td>47</td> </tr> <tr> <td>Social Studies</td> <td>55</td> <td>25</td> </tr> <tr> <td>Total</td> <td></td> <td>240</td> </tr> </tbody> </table> <p>a) Calculate the mean mark obtained by Yvette?</p> <p>Answer: 68</p> <p>b) How many marks did Barry score in Music?</p> <p>Answer: 31</p> <p>c) A mean of 55 is required to get a Grade C. How many MORE marks did Barry need in order to get a Grade C?</p> <p>Answer: 35</p> <p>d) Yvette needed 20 MORE marks to get a Grade B. What is the least amount of marks required to get a Grade B?</p> <p>Answer: The least amount of marks will be 360</p>	SUBJECT	YVETTE	BARRY	Maths	75	63	Language Arts	60	74	Music	70		Art	80	47	Social Studies	55	25	Total		240	<p>a) Total of Yvette's marks $= 75 + 60 + 70 + 80 + 55$ $= 340$</p> <p>Mean mark $= \frac{340}{5}$ $= 68$</p> <p>b) Barry's mark in 4 subjects $= 63 + 74 + 47 + 25$ $= 209$</p> <p>Barry's score in music $= 240$ $- 209$ <hr/> 31</p> <p>c) A mean of 55 in 5 subjects means that the total is $55 \times 5 = 275$.</p> <p>So Barry requires 275 $- 240$ <hr/> 35 more marks</p> <p>d) To get a B, Yvette needed 20 more marks. So, a grade B will require $340 + 20 = 360$ marks</p>			
SUBJECT	YVETTE	BARRY																								
Maths	75	63																								
Language Arts	60	74																								
Music	70																									
Art	80	47																								
Social Studies	55	25																								
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END OF TEST