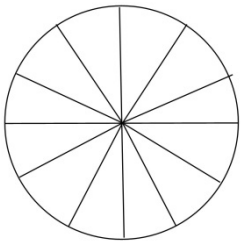
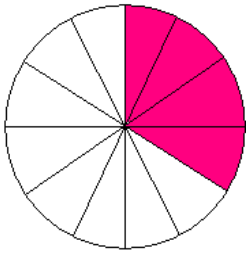
FAS-PASS
Maths

SEA MATHEMATICS 2014

SECTION I

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*		
				KC	AT	PS
1.	$\begin{array}{r} 417 \\ -\ 392 \\ \hline 25 \end{array}$ **Answer = 25**	$\begin{array}{r} {}^{3}\cancel{4}\,{}^{10+}1\,7 \\ -\ 3\,9\,2 \\ \hline 2\,5 \end{array}$				
2.	Write 3.49 to the NEAREST TENTH. **Answer = 3.5**	Units Tenths Hundredths 3. 4 9 ↓ 9 is the deciding digit. It is more than or equal to 5, so we add 1 to the tenths digit. We now ignore all digits to the right of the tenths digit. 3 . 4 9 + ↑ 1 ignore 3 . 5 to the nearest tenth				
3.	A pizza was cut into 12 equal slices, as shown below.  Shade $\frac{1}{3}$ of the pizza.	The number of equal slices is 12. $\frac{1}{3}$ of the pizza $= \frac{1}{3}(12)$ = 4 slices We may shade a total of **ANY** 4 slices. 				

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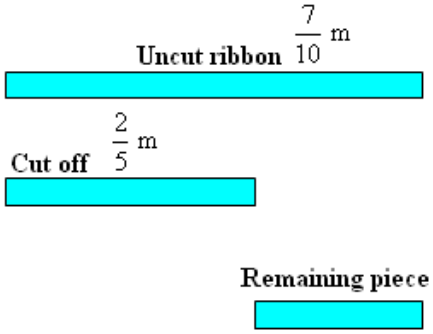
4.	Write ONE of the following symbols $>$ $=$ $<$ in the box below so that the number sentence is correct. $\frac{3}{4} \boxed{>} \frac{7}{12}$	To compare the two fractions it would be best for them to be expressed with the same denominator. $\frac{3}{4} = \frac{3}{4} \times \frac{3}{3}$ $= \frac{9}{12}$ $\therefore$ We compare $\frac{9}{12}$ and $\frac{7}{12}$ by looking at their numerators. 9 is greater than 7. $\therefore \frac{9}{12}$ is a larger fraction than $\frac{7}{12}$ $\frac{9}{12} > \frac{7}{12}$ and so, $\frac{3}{4} > \frac{7}{12}$.				
5.	A piece of ribbon is $\frac{7}{10}$ m long. A piece measuring $\frac{2}{5}$ m is cut off. What is the length, in metres, of the remaining piece? **Answer = $\frac{3}{10}$ m**	 The length of the remaining piece of ribbon = The length of the uncut ribbon – The length of the piece that was cut off $= \frac{7}{10} - \frac{2}{5}$ $= \frac{7}{10} - \frac{4}{10}$ $= \frac{7-4}{10}$ $= \frac{3}{10}$ m **OR** $= \frac{7}{10} - \frac{2}{5}$ $= \frac{1(7)-2(2)}{10}$ $= \frac{7-4}{10}$ $= \frac{3}{10}$ m				

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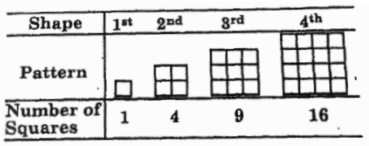
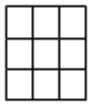
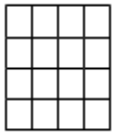
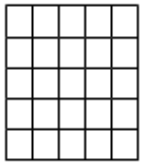
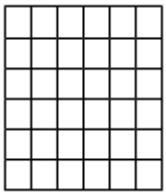
6.	**Questions 6 and 7 refer to the following information.** In a spelling contest, Peter was given 40 words to spell. He spelt 32 words correctly. What fraction of the total number of words did he spell correctly? **Answer =** $\frac{4}{5}$	Fraction of words that are spelt correctly $= \frac{\text{No. of words spelt correctly}}{\text{No. of words given}}$ $= \frac{32}{40}$ $= \frac{4}{5}$				
7.	Peter must spell at least 90% of the words correctly to qualify for a consolation prize. How many words should he have spelt correctly to qualify? **Answer = 36 or more words**	To qualify for a prize, Peter must spell at least 90% of the words correctly. 90% of 40 words $= \frac{90}{100} \times 40$ words $= 36$ words Hence, Peter needs to spell 36 or more words correctly, from the 40 words given. (Peter will qualify for the consolation prize if he spells 36 or 37 or 38 or 39 or all 40 words correctly).				

<table>
<tr><th>No.</th><th>TEST ITEMS</th><th>WORKING COLUMN</th><th></th><th>Do Not Write Here
KC</th><th>AT</th><th>PS</th></tr>
<tr><td>8.</td><td>The first four shapes in a pattern are shown below. EACH shape is made from squares of the same size.
 

How many squares would form the 6th shape?
Answer = 36 squares</td><td>
<table>
<tr><th>Shape</th><th>Pattern</th><th>No. of Squares</th></tr>
<tr><td>1st</td><td>  </td><td>1
(1×1)</td></tr>
<tr><td>2nd</td><td>  </td><td>4
(2×2)</td></tr>
<tr><td>3rd</td><td>  </td><td>9
(3×3)</td></tr>
<tr><td>4th</td><td>  </td><td>16
(4×4)</td></tr>
<tr><td>5th</td><td>  </td><td>25
(5×5)</td></tr>
<tr><td>6th</td><td>  </td><td>36
(6×6)</td></tr>
</table>
Therefore, in the 6th shape we can expect 36 squares.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>9.</td><td>Express 1 litre in cm^3
1 litre = 1000 cm^3</td><td>1 litre = 1000 ml
1 ml = 1 cm^3 (or 1 cubic centimetre)
$\therefore$ 1 litre = 1000 cm^3</td><td></td><td></td><td></td><td></td></tr>
<tr><td>10.</td><td>Express 120 minutes in hours
120 minutes = 2 hours</td><td>1 hour = 60 minutes
60 minutes = 1 hour
1 minute $= \frac{1}{60}$ hour
120 minutes $= \frac{1}{60}\times120$ hours
$= 2$ hours</td><td></td><td></td><td></td><td></td></tr>
</table>

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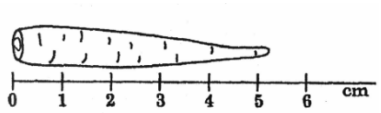
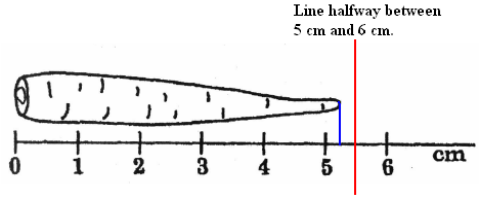
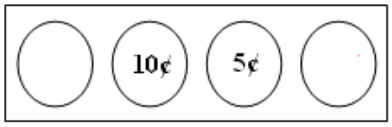
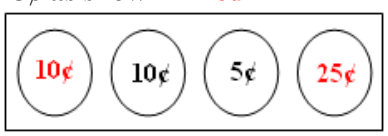
11.	The length of a carrot is measured below.  What is its length to the NEAREST centimetre? **Answer = 5 cm**	 The end of the carrot (indicated by the blue line) lies before the halfway mark (shown red) between 5 cm and 6 cm. Hence, the length of the carrot is 5 cm, when measured to the nearest cm.				
12.	A square sheet of paper has sides of 11 cm. What is its area? **Answer = 121 cm^2**	 Area of the square sheet of paper $= 11\text{cm} \times 11\text{ cm}$ $= 121\ cm^2$				
13.	Shari has 4 coins on her desk. They have a total value of 50¢. The value of two coins is shown in the diagram below.  Write the correct value on EACH of the other 2 coins. **Answer = One 10¢ and One 25¢ as shown in red**  	The total value of all 4 coins in 50¢. We are shown: 1 coin with a value of 10¢ and 1 coin with a value of 5¢. The value of these two coins together = 10¢ + 5¢ =15¢ Hence, the value of the remaining two coins = 50¢ - 15¢ = 35¢ Coins are made in the values of 1¢, 5¢, 10¢, 25¢ and 50¢. Two coins must have a total value of 35¢. Therefore, they must be one 10¢ and one 25¢.				

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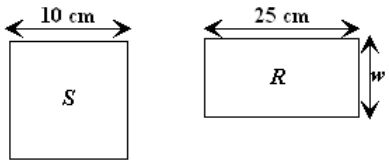
14.	A sales clerk is preparing a tag to show the selling price for a television.  Complete the tag below. **Cost Price** | \$1 740.00 **Discount** | \$ 174.00 **Selling Price** | **Answer:** **Cost Price** | \$1 740.00 **Discount** | \$ 174.00 **Selling Price** | **\$1 566.00**	Selling price = Cost price – Discount = \$1 740 –\$ 174 \$1 566 (It is better if, \$1 740, be referred to as the '**Marked Price'**, since **'Cost Price'** is actually the price that is paid for an item)				
15.	A square, labelled *S*, and a rectangle, labelled *R*, are shown below. **(The shapes are not drawn to scale.)**  Both shapes have the **same** area. Calculate the width, *w*, of the rectangle *R*? **Answer = 4 cm**	The area of the square, *S*, is the same as the area of the rectangle, *R*. Area of the square $= 10\text{ cm} \times 10\text{ cm}$ $= 100\text{ cm}^2$ Area of the rectangle = 25 × width Hence, 25 × width = 100 But we know that $25 \times 4 = 100$ Hence the width of the rectangle = 4 cm.				

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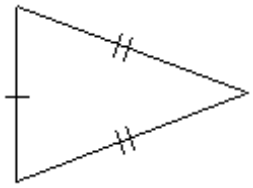
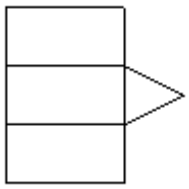
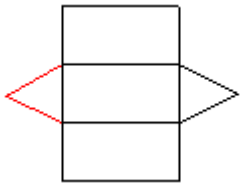
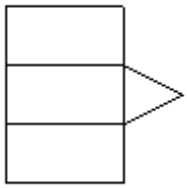
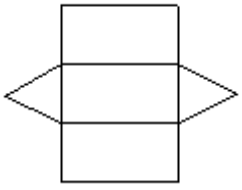
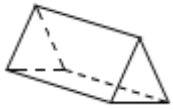
16.	The triangle below has ONLY two sides of equal length.  What type of triangle is it? **Answer: Isosceles**	A triangle with only two equal sides is called isosceles. Such a triangle may also be identified by having only two equal angles.				
17.	Complete the drawing below to show the net of a triangular-based prism.  **Answer:** 	The incomplete net of a triangular – based prism given is  The prism would have three (3) equal rectangular faces and two (2) equal triangular faces. Hence, the completed net would look like:  When folded the solid figure would look like: 				

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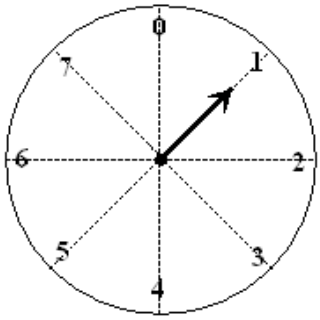
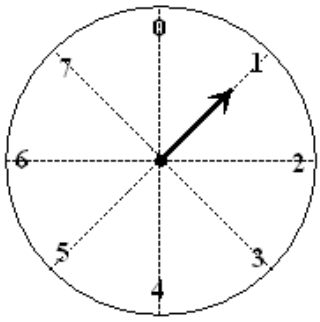
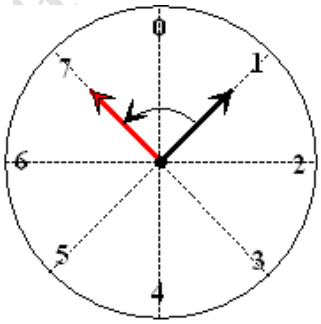
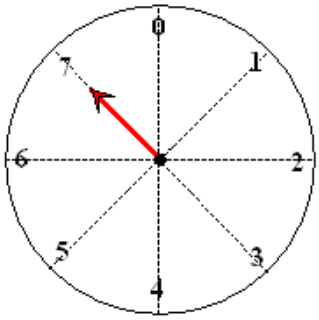
18.	Sunil changes the position of the arrow on the circular dial shown below.  He makes a quarter turn ANTI-CLOCKWISE. At which number is the arrow now pointing? **Answer = 7**	 A whole turn is 360^0 The dial is divided into 8 equal parts. Therefore, each angle is $360^0 \div 8 = 45^0$ $\frac{1}{4} turn = \frac{360^0}{4} = 90^0$ The dial is turned about 90^0 in an anti-clockwise direction.  Therefore, the dial will now point to the number 7. 				

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19.	Cookies were packaged in three bags as shown below.  What is the mean number of cookies in a bag? **Answer = 11 cookies**	Mean number of cookies in a bag $= \frac{\text{Total no. of cookies in all bags}}{\text{No. of bags}}$ $= \frac{15+8+10}{3}$ $= \frac{33}{3}$ $= 11$ cookies				
20.	The graph below shows the number of haircuts a barber did on five days of a particular week. The total number of haircuts done in the five days is 75. How many haircuts were done by the barber on Monday? **Answer = 5 haircuts**	The graph showing the number of haircuts performed by the barber over the 5 – day period is shown as a pictograph. That is, each picture, ☺, represents a certain number of haircuts. The total number of pictures (faces) over the 5 days is 1 + 4 + 2 + 2 + 6 = 15. Hence, 15 faces (☺) represent 75 haircuts. So, 1 face represents $\frac{75}{15} = 5$ haircuts. Hence, the number of haircuts done on Monday = 5 × 1 = 5.				

Day	Number of Haircuts
Monday	☺
Tuesday	☺ ☺ ☺ ☺
Wednesday	☺ ☺
Thursday	☺ ☺
Friday	☺ ☺ ☺ ☺ ☺ ☺

SECTION II

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21.	$5\frac{1}{2}-2\frac{5}{8}=$ **Answer =** $2\frac{7}{8}$	$5\frac{1}{2}-2\frac{5}{8}=5\frac{4}{8}-2\frac{5}{8}\ \left[\frac{1}{2}=\frac{4}{8}\right]$ $=\frac{44}{8}-\frac{21}{8}$ $=\frac{44-21}{8}$ $=\frac{23}{8}$ $=2\frac{7}{8}$ **OR** $5\frac{1}{2}-2\frac{5}{8}=5\frac{4}{8}-2\frac{5}{8}$ $=4\frac{12}{8}-2\frac{5}{8}$ $=2\frac{7}{8}$				
22.	Simplify, **using decimal notation**: $7+\frac{5}{10}+\frac{3}{100}$ **Answer = 7.53**	<table><tr><td>Ones</td><td>Tenths</td><td>Hundredths</td></tr><tr><td>7</td><td>5</td><td>3</td></tr></table> $7+\frac{5}{10}+\frac{3}{100}$ $= 7 + 0.5 + .03 = 7.\ 00$ $+\ 0.50$ $\underline{0.03}$ 7.53				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
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23.	Carrie had \$60 as an allowance for the week. She spent $\frac{2}{5}$ of it on snacks, $\frac{1}{4}$ of it on stickers and saved the remainder. a) What fraction did she spend on snacks and stickers together? **Answer =** $\frac{13}{20}$ b) How much money did she save? **Answer = \$21**	Total allowance = \$60 Fraction of allowance spent on snacks = $\frac{2}{5}$ Fraction of allowance spent on stickers = $\frac{1}{4}$ a) Fraction spent on both snacks and stickers $= \frac{2}{5} + \frac{1}{4}$ $\left[\frac{2}{5} = \frac{8}{20} \text{ and } \frac{1}{4} = \frac{5}{20}\right]$ $= \frac{8}{20} + \frac{5}{20}$ $= \frac{8+5}{20}$ $= \frac{13}{20}$ b) Fraction of Carrie's allowance saved $= 1 - \frac{13}{20}$ $= \frac{20}{20} - \frac{13}{20}$ $= \frac{20-13}{20}$ $= \frac{7}{20}$ The amount of money saved $= \frac{7}{20} \times \$60$ $= \$21$				

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24.	In a car park, $\frac{3}{5}$ of the cars are blue and the remainder are white. What **percentage** of the cars are white? **Answer = 40%**	The fraction of cars that are blue $= \frac{3}{5}$ Therefore, the fraction of cars that are white $= 1 - \frac{3}{5}$ $= \frac{5}{5} - \frac{3}{5}$ $= \frac{5-3}{5}$ $= \frac{2}{5}$ Hence, the percentage of cars that are white $= \frac{2}{5} \times 100$ $= 40\%$ **OR** Fraction of cars that are blue $= \frac{3}{5}$ Hence, the percentage of cars that are blue $= \frac{3}{5} \times 100$ $= 60\%$ Therefore, the percentage of cars that are white = 100 – 60 = 40%				

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25.	Alim collected seashells over the weekend. He collected 45 seashells on Saturday and three times as many on Sunday. a) How many seashells did Alim collect on Sunday? **Answer = 135 seashells** b) What percentage of the seashells collected over the weekend did he collect on Saturday? **Answer = 25%**	Number of seashells collected on Saturday = 45 a) Therefore, the number of seashells collected on Sunday $= 45 \times 3$ $= 135$ seashells b) The total number of shells collected over the weekend = The number of shells collected on Saturday + The number of shells collected on Sunday $= \begin{array}{r} 45 \\ +135 \\ \hline 180 \end{array}$ seashells The number of seashells collected on Saturday as a percentage of the number collected over the weekend $= \frac{\text{No. of seashells collected on Saturday}}{\text{Total no. of seashells collected on both days}} \times 100\%$ $= \frac{45}{180} \times 100$ $= 25\%$				

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26.	The table below shows the points scored for hitting three different coloured targets in a video game. **Colour** / **No. of Points** White: 2 Blue: 3 Gold: 5 Ana scored 53 points in playing the game. She hit the blue target 4 times and the white target 3 times. How many times did she hit the GOLD target? **Answer = 7 times**	When Ana hit the blue target 4 times she would have scored $3 \times 4 = 12$ points. When Ana hit the white target 3 times she would have scored $2 \times 3 = 6$ points. Hence, by hitting the blue targets and the white targets, Ana scored 12 + 6 = 18 points. Ana scored a total of 53 points. Hence the number of points scored by Ana on hitting the gold target is 53 – 18 = 35 points. Each time Ana hits the gold target she scores 5 points. For a total of 35 points, she would have hit the gold target $= \frac{35}{5}$ = 7 times				

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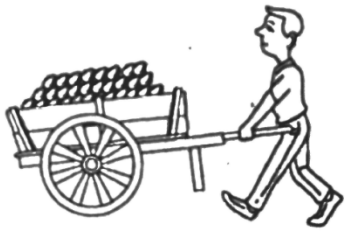
27.	A fruit vendor transported 360 mangoes to the market. While transporting the mangoes, 10% of them were damaged.  a) How many mangoes were damaged? **Answer = 36 mangoes** b) The mangoes that were not damaged were packed into boxes of 12. How many boxes were used to pack these mangoes? **Answer = 27 boxes**	The number of mangoes being transported to the market = 360 a) Percentage of mangoes damaged while being transported = 10% The number of damaged mangoes $= 10\%$ of 360 $= \frac{10}{100} \times 360$ $= 36$ mangoes b) The number of mangoes that were not damaged = The number of mangoes transported to the market – The number of damaged mangoes = 360 – 36 = 324 mangoes 324 mangoes are to be packed in boxes of 12 The number of boxes used $= \frac{324}{12}$ $= 27$ boxes $12\overline{)324}$ = 27 -24 84 -84 0				

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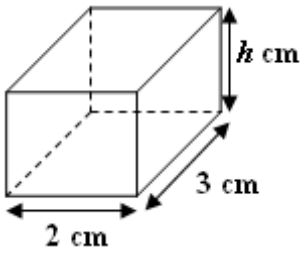
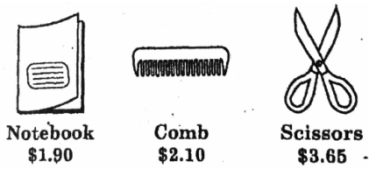
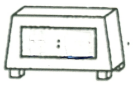
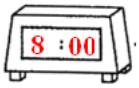
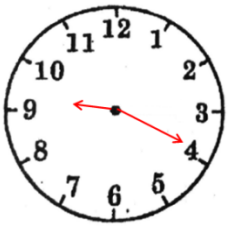
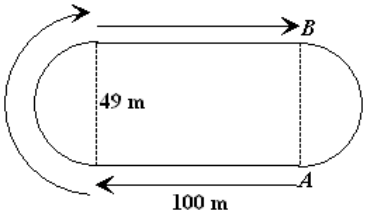
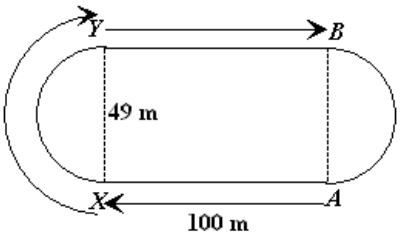
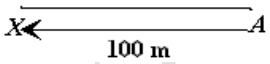
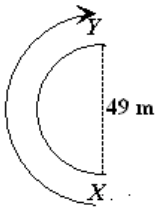
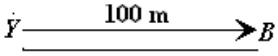
28.	Five years ago, Paul was $\frac{3}{8}$ his father's age. Paul's father is now 37 years old. How old is Paul now? **Answer = 17 years**	Paul's father is now 37 years old. Five years ago, Paul's father would have been $37 - 5 = 32$ years old. Therefore, Paul was $\frac{3}{8}$ of his father's age when his father was 32. Paul's age at that time (5 years ago) would have been $\frac{3}{8} \times 32 = 12$ years. Now, five years after, Paul's age $= 12 + 5$ $= 17$ years				
29.	The volume of the cuboid shown below is 48 cm^3. The length of the cuboid is 3 cm, the width is 2 cm and the height is h cm.  Calculate the value of h. **Answer = 8**	Volume of cuboid $= \text{Length} \times \text{Width} \times \text{Height}$ $= 48$ cm^3 Hence, $3 \times 2 \times h = 48$ $6h = 48$ $h = 48 \div 6$ $h = 8$				

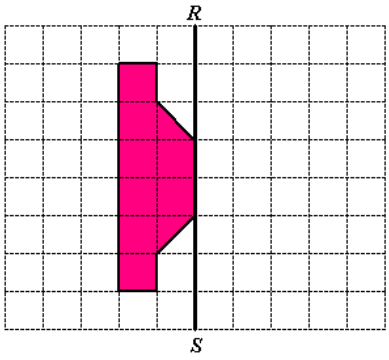
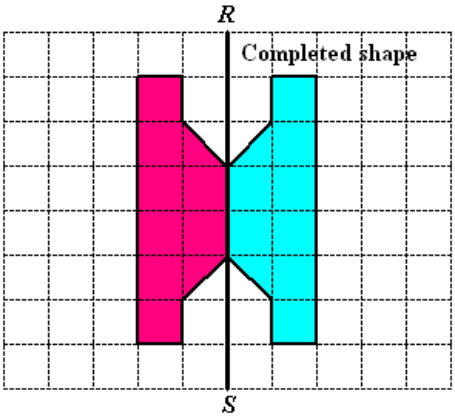
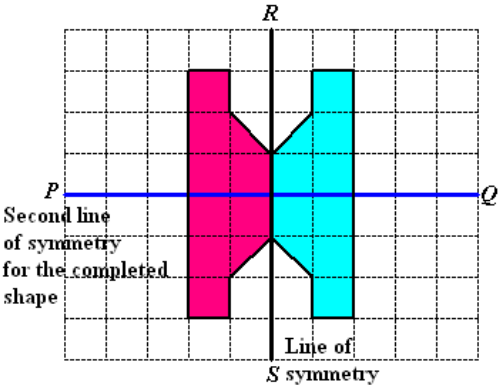
No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
30.	Burns ran the following distances over a 2 – week period while training for the Olympics. **Week** | **Distance Ran** 1 | 3 km 800 m 2 | 2.75 km What is the TOTAL distance covered by Burns over the 2 weeks? **Answer = 6 km 550 m or 6.55 m**	Distance ran by Burns in week 1 = 3 km 800 m Distance ran by Burns in week 2 = 2.75 km 1 km = 1000 m Therefore 0.75 km $= 0.75 \times 1000$ m $= 750$ m Therefore, in week 2, Burns ran a distance of 2 km 750 m. The total distance ran by Burns, over the two-week period = 3 km 800 m + 2 km 750 m km m $^{+1}3$ 800 + 2 750 6 550 m 800 m + 750 m 1550 m = 1km 550m				
31.	Mr. Lee borrowed \$8 000 from the bank to buy a used car. He paid simple interest at a rate of 12% per year for a period of 3 years. How much simple interest did Mr. Lee pay? **Answer = \$2 880**	Simple Interest $= \frac{\text{Principal} \times \text{Rate} \times \text{Time}}{100}$ $= \frac{\$8000 \times 12 \times 3}{100}$ $= \$2880$				

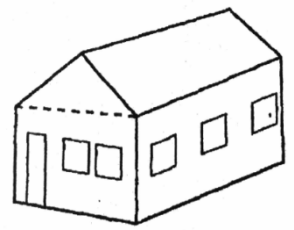
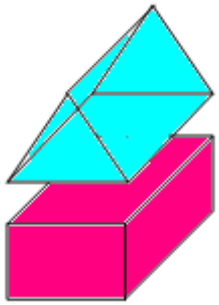
No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
32.	Jane bought the three items, shown below, at the supermarket.  a) What is the TOTAL cost of the 3 items? **Answer = $7.65** b) Calculate Jane's EXACT change if she paid for the items with a $20.00 bill. **Answer = $12.35**	a) Cost of 1 notebook = $1.90 Cost of 1 comb = $2.10 Cost of 1 pair of scissors = $3.65 Total cost = $7.65 a) Change from $20.00 will be The amount that Jane paid – The cost of all the items = $ 20.00 – $ 7.65 $12.35				

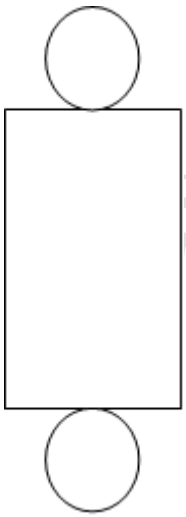
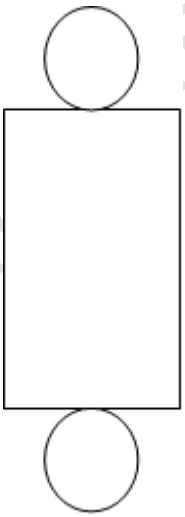
No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
33.	The time shown on Clock A is 15 minutes AHEAD of the correct time.  A  B a) Insert the correct time on Clock B. **Answer = 8:00** b) At the end of the next hour, Clock A gained an additional 5 minutes ahead of the correct time. What time will be shown on Clock A? **Answer = 9:20**	a) The time shown on Clock A is a quarter past 8 **OR** 15 minutes after 8 o'clock. Since the time shown is 15 minutes ahead of the correct time, then the correct time is 8 : 1 5 − : 1 5 8 : 0 0 The correct time shown on Clock B should be 8:00, since B is a digital clock.  A  B b) Clock A shows the incorrect time of 8:15. In one hour time, Clock A shows an additional 5 minutes ahead. Hence, Clock A will show: 8 : 1 5 + 1 : 0 5 9 : 2 0 				

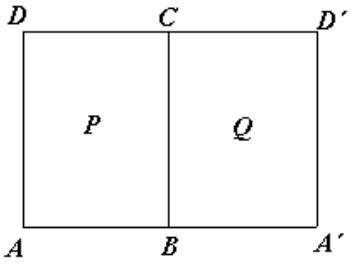
No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
34.	The diagram below shows a cycling track consisting of a rectangle and two semi-circles.  A cyclist starts at point A and cycles in the direction of the arrows to point B. What distance did he cover? $\left(\pi = \frac{22}{7}\right)$ **Answer = 277 m**	 The points X and Y are named on the figure for convenience. Since the arrow shows the direction of the cyclist from A to B, we can say the cyclist rides from A to X, X to Y and then Y to B. From A to X is 100 m.  From X to Y is a semi-circle of diameter 49 m.  The distance from X to Y is one half the circumference of the circle $= \frac{1}{2}(\text{Diameter} \times \pi)$ $= \frac{1}{2}\left(49 \times \frac{22}{7}\right)$ $= 77$ m From Y to B is 100 m.  Therefore the total distance covered by the cyclist = 100 + 77 + 100 = 277 m				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
35.	The school cafeteria, bought 5 dozen silly bands at \$15 per dozen and sold them for \$2 EACH. a) What was the profit, in dollars, made by the school cafeteria? **Answer = \$45** b) Calculate the profit as a percentage of the cost price. **Answer = 60%**	a) The cost of one dozen silly bands = \$15 Therefore, the cost of 5 dozen silly bands $= \$15 \times 5$ $= \$75$ The selling price of 1 silly band = \$2. Hence, the selling price of all 5 dozen silly bands $= 5 \times 12 \times \$2$ $= \$120$ The profit made $=$ Selling price $-$ Cost price $= \$120 - \$75$ $= \$45$ b) Profit as a percentage of the cost price $= \frac{\text{Profit}}{\text{Cost price}} \times 100\%$ $= \frac{45}{75} \times 100\%$ $= 60\%$				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
36.	The diagram below shows an incomplete plane shape and one of its lines of symmetry, *RS*.  a) Complete the drawing of the shape. b) Draw another line of symmetry, *PQ*, for the completed shape.	a)  b)  				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
37.	Use the diagram below to answer the questions that follow.  State the names of: a) ONE plane shape in the diagram above. **Answer: Rectangle, (Also - triangle or pentagon or square)** b) ONE solid that would be needed to make a model of the building. **Answer: A Cuboid** **(or a triangular prism)**	a) In the diagram shown, there are rectangles (the door, the four sides of the house and the two sides of the roof). There are other plane shapes such as a square (the windows) and a pentagon (one side of the house) and a triangle (part of the roof). b) In order to make a model to the building we would need a either cuboid or a triangular prism. (As shown below the model when detached comprises a triangular prism and a cuboid). 				

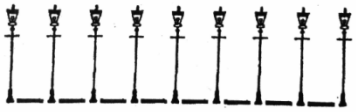
No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
38.	The diagram below shows a cylindrical package closed at both ends.  a) How many faces does the package have? **Answer: 3 faces** b) Draw the net of the package. 	a) The cylinder has two circular faces (top and bottom) and a curved face. Hence, the cylinder has 3 faces. b) The net of the curved face only is a rectangle. The net of the complete package must include the base and top. These are both circles, so the complete net is shown below. 				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
39.	The shape $ABCD$ below is moved from its position at P to the position at Q so that Corner A is now at A' and Corner D is now at D'.  a) What is the name of this movement? **Answer: Reflection or flip.** b) Describe the movement in (a) FULLY. **Answer: $BCD'A'$ is a reflection of *BCDA* in the line *BC*.** c) Under the same movement in (a), describe what happens to Corner B? **Answer: Point *B* remained in the same place. We can say that *B* is an invariant point.**	a) In the movement, B and C remain in the same position. $BCD'A'$ is the same size as $BCDA$. BC is a line of symmetry. The movement is a reflection or a 'flip'. b) BC is the line of reflection. The shape $BCDA$ is reflected in the mirror line BC to produce the image $BCD'A'$. c) The Corner or point B remained in the same place and did not move. In a reflection, points on the mirror line do not move or remain invariant. (The same can be said for point C).				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
40.	The pie chart below shows the favourite pets of the pupils in Standard 3.  a) Which TWO pets are equally favoured? **Answer: Rabbits and goats** b) What percentage of the pupils in Standard 3 favour parrots? **Answer: 20%**	a) From the pie chart we can list a table to show the percentage of each sector. Cats: 5% Dogs: 15% Sheep: 10% Goats: 25% Rabbits: $\frac{90°}{360°}\times 100 = 25\%$ Parrots: $100-(5+15+10+25+25) = 20\%$ Hence, rabbits and goats are equally favoured since they both have the same percentage of pupils who favour them. b) Since the sum of all the sectors must total 100%, then the percent of pupils who favour parrots $=100-(5+15+10+25+25)$ $=20\%$				

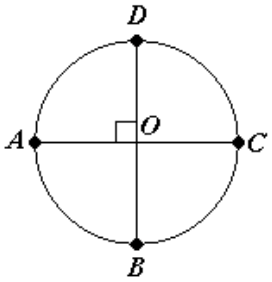
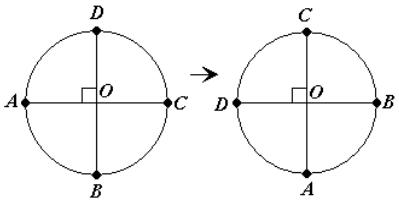
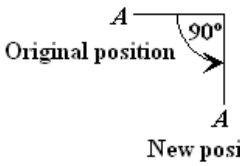
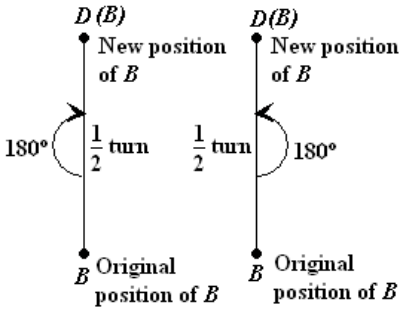
SECTION III

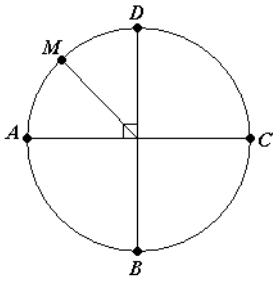
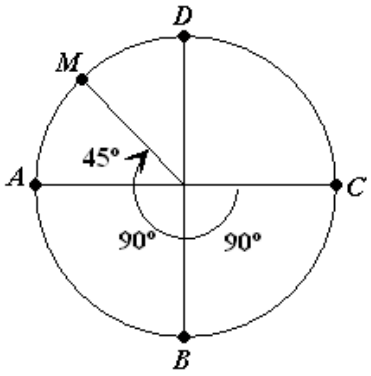
No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
41.	A fruit vendor has 160 fruits in his stall. Of these, $\frac{3}{8}$ are mangoes and 20% are plums. The **remainder** is avocados. a) How many mangoes does he have? **Answer = 60 mangoes** b) Express the number of fruits that are plums as a DECIMAL fraction. **Answer = 0.2** c) Calculate the number of avocados in his stall. **Answer = 68 avocados**	a) Total number of fruits = 160 $\frac{3}{8}$ of the fruits are mangoes. Therefore the number of mangoes $= \frac{3}{8} \times 160$ $= 60$ mangoes b) 20% of the fruits are plums. To express 20% as a decimal: $20\% \equiv \frac{20}{100} = \frac{2}{10} = 0.2$ The number of fruits that is plums as a decimal fraction, is 0.2. c) The number of plums is $= 20\%$ of 160 $= \frac{20}{100} \times 160$ $= 32$ Besides mangoes and plums, the remainder of fruits is avocados. Therefore, the number of avocados $= \text{No. of fruits} -$ $(\text{No. of mangoes} + \text{No. of plums})$ $= 160 - (60 + 32)$ $= 68$ avocados				

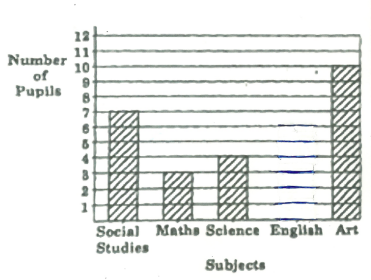
No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
42.	Nine light posts are evenly spaced along a highway. A total of 144 plastic pipes of the same length is placed EQUALLY between the 9 posts.  a) How many pipes are placed between the first and second posts? **Answer = 18 pipes** b) Each pipe is 7 m long. The pipes are connected end-to-end (just touching each other) between the posts. What is the distance between the first and second posts? **Answer = 126 m**	a) Since there are 9 posts and the pipes are equally spaced between the posts, then the pipes are equally placed between 8 spaces. 144 pipes are spaced equally between the 8 spaces which lie between the posts. Therefore, any two posts next to each other there would be $\frac{144}{8}=18$ pipes. b) Length of each pipe = 7 m 18 pipes are placed, end-to-end, between the 1st and 2nd posts. ASSUMING that the pipes are all straight and that they lie in a straight line, the distance between the 1st and 2nd post will be the total length of all 18 pipes. $=18\times 7$ m $=126$ m Hence, the distance between the 1st and 2nd posts is 126 m.				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
43.	An applicance store offers $33\frac{1}{3}\%$ discount on cash purchases. The original price on a refrigerator is \$8 400. a) What is the discounted price on the refrigerator? **Answer = \$5 600** b) VAT at 15% is calculated on the discounted price. How much is the VAT? **Answer = \$840** c) What is the FINAL cost of the refrigerator when purchased for cash? **Answer: \$6 440**	a) Original price of refrigerator = \$8400. Discount $= 33\frac{1}{3}\%$ $= 33\frac{1}{3}\% = \frac{1}{3}$ Discount $= \frac{1}{3} \times \$8400$ $= \$2800$ The discounted price = Original price – Discount = \$ 8 4 0 0 – \$ 2 8 0 0 \$ 5 6 0 0 b) VAT = 15% of the discounted price $\therefore \text{VAT} = \frac{15}{100} \times \$5600$ $= 15 \times \$56$ $= \$840$ c) The final cost of the refrigerator = Discounted price + VAT = \$5 600 + \$840 = \$6 440				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
44.	Lance's weekly wage is calculated using the rates in the table below. Lance works for 8 hours daily. **Wage Rates** $10 per hour during the week (Monday to Friday) $15 per hour for weekends (Saturday and Sunday) a) During one week, Lance worked on Monday, Wednesday, Friday and Saturday. How many hours did Lance work during that week? **Answer = 32 hours** b) Using the rates in the table above, calculate Lance's wage for that week. **Answer = $360** c) Lance's wage last week was $400. He worked on Saturday and Sunday. How many HOURS did he work from Monday to Friday? **Answer = 16 hours**	a) Lance works for 8 hours per day. Lance worked Monday, Wednesday, Friday and Saturday (a total of 4 days). Hence, the number of hours that Lance worked $= 8 \times 4$ $= 32$ hours b) Lance worked for 8 hours per day for 3 days, at the rate of $10 per hour Lance's wage for Monday, Wednesday, Friday $= (8 \times \$10) \times 3$ $= \$240$ Lance worked for 8 hours on Saturday, at the rate of $15 per day. Lance's wage for Saturday $= 8 \times \$15$ $= \$120$ Lance's wage for that week $= \$240$ $+ \$120$ $\$360$ c) When Lance works on both Saturday and Sunday, he is paid $(\$15 \times 8) \times 2 = \$240$ Lance's total pay is $400. Hence, Lance's pay for working Monday to Friday $= \$400 - \$240$ $= \$160$ At the rate of $10 per hour, the number of hours worked would have been $= \frac{\$160}{\$10}$ $= 16$ hours				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*	KC	AT	PS
45.	Four points A, B, C and D are equally spaced around the edge of a circular spinner and connected to the centre O as shown in the diagram below.  a) Raj turns the spinner so that A moves in an anti-clockwise direction to the position of B. What was the size of the angle through which the spinner moved? **Answer = 90° (anti-clockwise)** b) Describe FULLY how Raj can turn the spinner so that B moves to the position of D. **Answer: 180° clockwise OR anti-clockwise**	a) A moves anti-clockwise to B.   The spinner moved through $\frac{1}{4}$ of a turn. $=\frac{1}{4}(360°)$ $=90°$ anti-clockwise b) For B to move to D (which is opposite) the spinner must be moved through $\frac{1}{2}$ a turn.  The angle of turn is 180°. The direction of turn can be either clockwise or anti-clockwise (counter clockwise).				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
	c) Raj turned the spinner so that C moves 225° in a clockwise direction to a point M. Label the point M on the diagram on page 28.  	c) The spinner is turned so that C moves 225° clockwise to A. From C to B (clockwise), the angle of rotation is 90^0. From B to A (clockwise), the angle of rotation is 90^0. From A to M (clockwise), the angle of rotation is $(225^0 - 180^0) = 45^0$.  Therefore M is situated halfway between A and D along the circle.				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*	KC	AT	PS
46.	The incomplete bar graph below shows the favourite subjects of the 30 pupils in a Standard 5 class.  a) How many **more** pupils favour Social Studies than Maths? **Answer = 4 pupils** b) What percentage of the class chose Maths as their favourite subject? **Answer = 10%** c) How many pupils chose English as their favourite subject? **Answer = 6 pupils** d) Complete the graph on page 30 by drawing the bar to represent the number of pupils whose favourite subject is English.	a) The number of pupils who favour Social Studies = 7 The number of pupils who favour Maths = 3 Hence, $7 - 3 = 4$ more pupils favour Social Studies than Maths b) The total number of pupils in the class = 30 Percentage of pupils who favour Maths $= \frac{\text{No. of pupils who favour Maths}}{\text{Total no. of pupils}}$ $= \frac{3}{30} \times 100\%$ $= 10\%$ c) From the bar graph, there is no bar drawn, showing the number of pupils who favour English. Number of pupils who favour English = (Number of students in the class) – (Number of students who favour the remaining subjects) $= 30 - (7 + 3 + 4 + 10)$ $= 30 - 24$ $= 6$ d) The completed bar graph showing the number of students who favour English will be: