FAS-PASS
Maths

SEA MATHEMATICS 2015

SECTION I

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
1.	7 4 6 9 − 2 3 6 1 **Answer 5 1 0 8**	T H t u 7 4 6 9 − 2 3 6 1 5 1 0 8				
2.	Write in figures: Two hundred and five thousand and seventy-three. **Answer: 205 073**	Two hundred and five thousand 205000 Seventy-three 73 205073				
3.	State the VALUE of the underlined digit in the following numeral. 75**3** 291 **Answer:** **Three thousand (3 000)**	7 (Hundreds of thousands) 5 (Tens of thousands) **3** (Thousands) 2 (Hundreds) 9 (Tens) 1 (Ones)				
4.	Write the number in the box that CORRECTLY completes the following sentence. $\frac{1}{12} \times \square = 20$ $\frac{1}{12} \times \boxed{240} = 20$ **Answer: 240**	One twelfth of a number is 20. Each of 12 parts is 20 20 20 20 20 20 20 20 20 20 20 20 20 The whole number is $20 \times 12 = 240$ OR $\frac{1}{12} \times \square = 20$ $\square = 20 \div \frac{1}{12}$ $= \frac{20}{1} \div \frac{1}{12}$ $= \frac{20}{1} \times \frac{12}{1}$ $= 240$				

<table>
<tr><th rowspan="2">No.</th><th rowspan="2">TEST ITEMS</th><th rowspan="2">WORKING COLUMN</th><th colspan="4">Do Not Write Here</th></tr>
<tr><th></th><th>KC</th><th>AT</th><th>PS</th></tr>
<tr><td>5.</td><td>Write the following numbers in descending order (starting with the GREATEST in value).

5 173, 5 731, 5 317

Answer: 5 731, 5 317, 5 173</td><td>PLACE VALUE CHART
<table><tr><td>Th</td><td>H</td><td>t</td><td>o</td></tr><tr><td>5</td><td>1</td><td>7</td><td>3</td></tr><tr><td>5</td><td>7</td><td>1</td><td>3</td></tr><tr><td>5</td><td>3</td><td>1</td><td>7</td></tr></table>
Starting with the first digit on the left.
All three numbers start with 5.
Hence, the first digit of the numbers does not decide the greatest number.

Therefore, the second digit counting from the left decides the largest to the smallest.

7 is the largest of all three.
3 is the second largest of the three.
1 is the smallest of the three.
Therefore, the numbers written from the greatest to the smallest would be 5 731, 5 317 and 5 173.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>6.</td><td>Write $\frac{39}{4}$ as a mixed number.

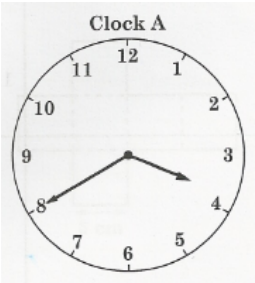
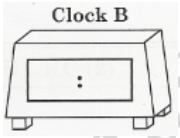
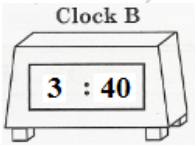
Answer: $9\frac{3}{4}$</td><td>$\frac{39}{4}$ is 39 quarters and 4 quarters = 1 whole
Number of wholes in 39 quarters = $39 \div 4$
= 9 wholes and 3 quarters remaining
$\frac{39}{4} = 9\frac{3}{4}$</td><td></td><td></td><td></td><td></td></tr>
<tr><td>7.</td><td>A chocolate factory produces 250 boxes of chocolates in a day. Each box contains 30 bars. How many chocolate bars are produced in a day?

Answer: 7 500</td><td>One box contains 30 chocolate bars.

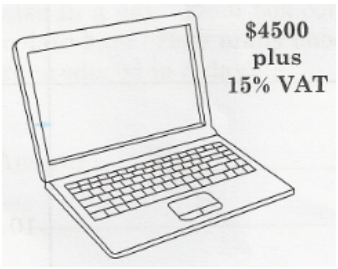
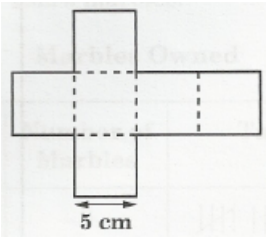
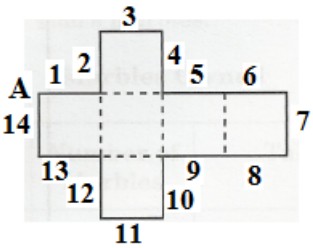
Therefore, 250 boxes will contain 250×30 chocolate bars.

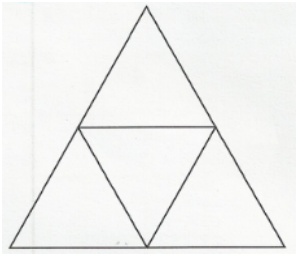
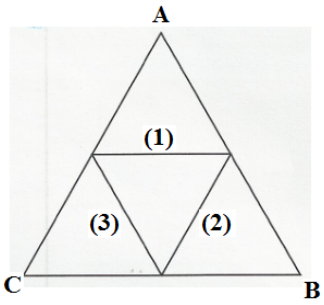
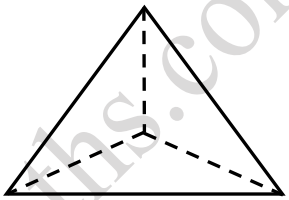
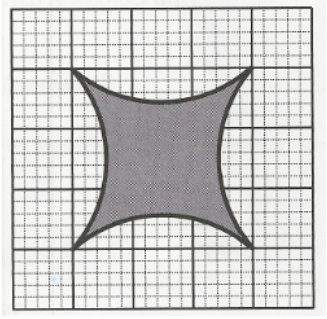
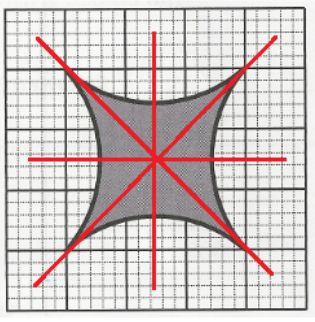
$250 \times 30 = 250 \times 10 \times 3$
$= 2500 \times 3 = 7500$

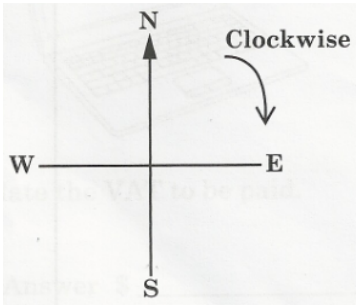
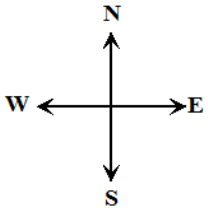
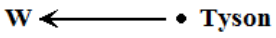
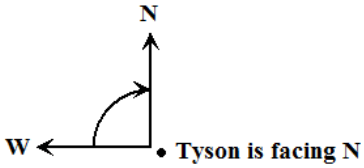
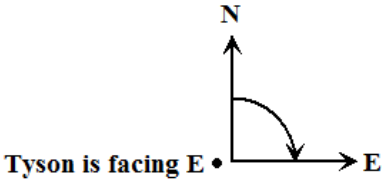
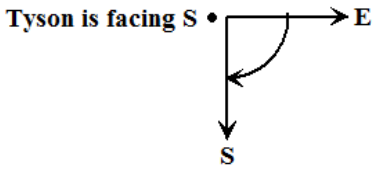
$\therefore$ The number of chocolate bars produced by the factory per day = 7 500.</td><td></td><td></td><td></td><td></td></tr>
</table>

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
8.	Complete the following number sequence. 4, 9, 15, 22, 30, 39, _____ **Answer: 49** 4, 9, 15, 22, 30, 39, 49	4 $_{4+5=9}$ 9 $_{9+6=15}$ 15 $_{15+7=22}$ 22 $_{22+8=30}$ 30 $_{30+9=39}$ 39 $_{39+10=49}$ 49 Therefore, the next number in the sequence is 49.				
9.	Write the time shown on Clock A, in digital notation, on Clock B.  **Answer:**   	The hour or shorter hand is between 3 and 4. This means the hour is after 3 o'clock but not yet 4 o'clock. The number of minutes between each number is 5. The minute or longer hand points to the number 8. Therefore, $8 \times 5 = 40$ minutes have passed since 3 o'clock. Therefore, the time is 3:40 in digital notation.				
10.	Convert 2.369 kilometres to metres. **Answer: 2 369**	1 kilometre = 1 000 metres Therefore, $2.369 = 2.369 \times 1\,000$ $= 2\,369$ metres				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
11.	What is the length of the pencil to the NEAREST centimetre?  **Answer: 3 cm**	 The point of the pencil is a little to the left of the 2.5 cm mark. The other end of the pencil is about where the 5.5 cm mark appears to be. The pencil is a little bit longer than 5.5 – 3.5 = 3.0 cm and so the length of the pencil is equal to 3 cm to the nearest centimetre.				
12.	Chad buys a bag of oranges for $9.50. How much change should he get if he pays with a $20.00 bill? **Answer: $10.50**	The cost of the bag of oranges = $9.50 The amount that is used for payment = $20.00 Therefore, the change is $20.00 − $9.50 20.00 − 9.50 10.50 The change is $10.50				
13.	**kg** **g** 6 763 + 3 286 **Answer :** _____ **kg** **g** 6 763 + 3 286 10 49	**kg** **g** 6 763 + 3 286 10 49 6 + 763 + 3 + 286 1 1049 10 kg = 1000 + 49 ↑ ↑ 1 kg 49 g				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
14.	A laptop was advertised as shown below.  Calculate the VAT to be paid. **Answer: $675**	VAT on the laptop = 15% of $4 500 $= \frac{15}{100} \times 4500$ $= \$(15 \times 45)$ $= \$675$ $\begin{array}{r} 45 \\ \times\ 15 \\ \hline 450 \\ 225 \\ \hline 675 \end{array}$				
15.	The following net is for a cube with edges of 5 cm. Calculate the perimeter of this net.  **Answer: 70 cm**	The length of each edge of the cube is 5 cm. Choose A as the starting point and checking the number of edges upon returning to A.  The perimeter is made up of 14 equal edges. Each edge is 5 cm Therefore, the perimeter of the net $= 5 \text{ cm} \times 14$ $= 70 \text{ cm}$				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
16.	What is the name of the solid shape that can be made with the following net?  **Answer: Triangular prism OR tetrahedron**	 If we fold A along side 1, B along side 2 and C along side 3, so that A, B and C touch we should form a triangular prism.  The triangular prism has four faces that are identical, it is also called a tetrahedron.				
17.	How many lines of symmetry are there in the following shaded shape?  **Answer: 4 lines**	 There are 4 lines of symmetry in the given shape.				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
18.	Tyson is facing West and makes THREE $\frac{1}{4}$-turns in a clockwise direction.  In which direction will Tyson now be facing? **Answer: South (S)**	 Tyson is facing West.  After 1st $\frac{1}{4}$ turn clockwise:  After 2nd $\frac{1}{4}$ turn clockwise:  After 3rd $\frac{1}{4}$ turn clockwise:  				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS

19. Altogether, four pupils own 39 marbles.

Complete the following chart to show the tally for Tom's marbles.

Marbles owned

Pupil	Number of Marbles	Tally
Raj	8	
Tom		
Carla	4	
Sita	16	

Answer:

Pupil	Number of Marbles	Tally
Raj	8	𝍸 |
Tom	11	𝍸 𝍸 |
Carla	4	||||
Sita	16	𝍸 𝍸 𝍸 |

The total number of marbles owned by Raj, Tom, Carla and Sita is 39.

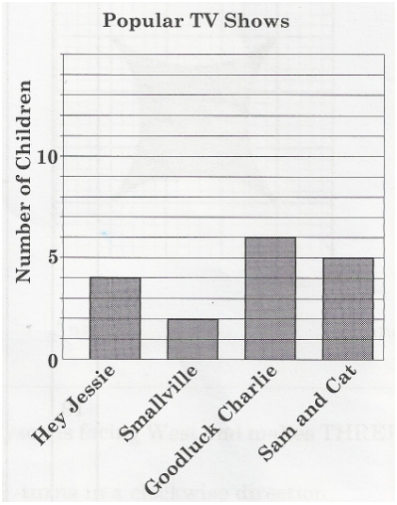
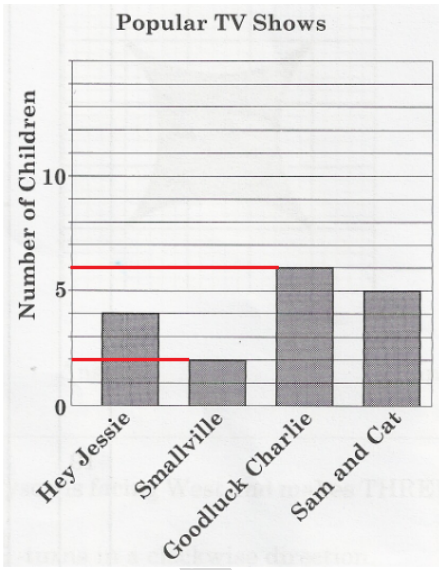
Raj, Carla and Sita own $8+4+16=28$ marbles.

Therefore, Tom owns $39-28=11$ marbles

$$\begin{array}{r} 39- \\ \underline{28} \\ 11 \end{array}$$

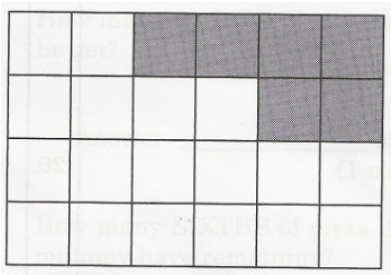
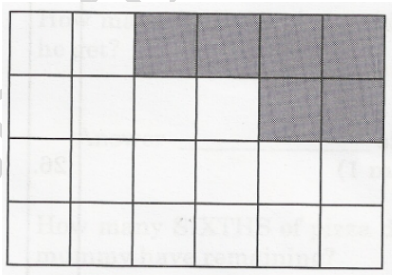
The tally for 11 is 𝍸 𝍸 \|

Pupil	Number of Marbles	Tally
Raj	8	𝍸 |
Tom	11	𝍸 𝍸 |
Carla	4	||||
Sita	16	𝍸 𝍸 𝍸 |

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
20.	The following bar graph represents some TV shows viewed by the pupils in a Standard 3 class.  How many **more** pupils need to view Smallville for it to be as popular as Goodluck Charlie. **Answer: 4 pupils**	 The number of pupils who view Smallville is 2. The number of pupils who view Goodluck Charlie is 6. The difference is 6 – 2 = 4. Therefore, 4 more pupils need to view Smallville so that it is as popular as Goodluck Charlie.				

SECTION II

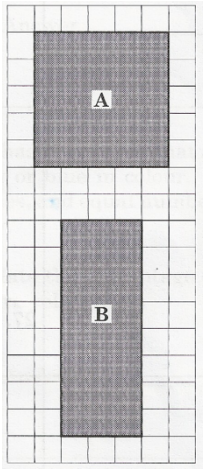
No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
21.	$2\frac{7}{8}+4\frac{1}{3}$ **Answer:** $\mathbf{7\frac{5}{24}}$	$2\frac{7}{8}+4\frac{1}{3}$ Adding the whole numbers: $2+4=6$ Adding the fractions: $\frac{7}{8}+\frac{1}{3}$ $\frac{7}{8}\times\frac{3}{3}=\frac{21}{24}$ $\frac{1}{3}\times\frac{8}{8}=\frac{8}{24}$ $\frac{7}{8}+\frac{1}{3}=\frac{21}{24}+\frac{8}{24}$ $=\frac{21+8}{24}$ $=\frac{29}{24}$ $=\frac{24+5}{24}$ $=1+\frac{5}{24}$ Hence, $2\frac{7}{8}+4\frac{1}{3}=6+1+\frac{5}{24}$ $=7\frac{5}{24}$				

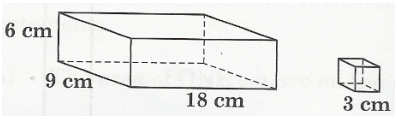
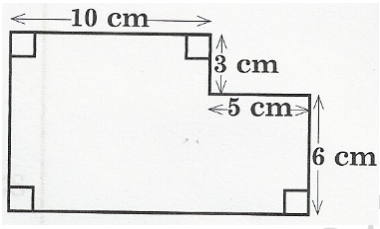
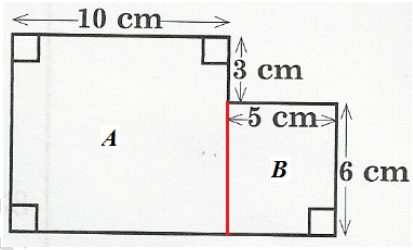
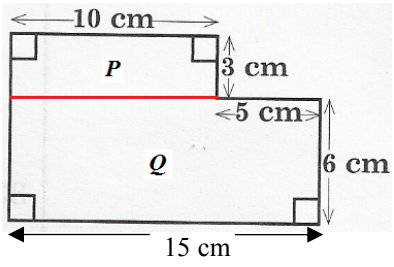
No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
22.	Maria has 413 stamps. Her brother has 49 stamps fewer than she has. How many stamps do they have ALTOGETHER? **Answer: 777**	Maria has 413 stamps. Brother has 49 fewer stamps. Therefore, her brother has 413 – 49 = 364 stamps. $\begin{array}{r} 413- \\ 49 \\ \hline 364 \end{array}$ Together Maria and her brother have 413 + 364 stamps. $\begin{array}{r} 413+ \\ 364 \\ \hline 777 \end{array}$				
23.	The following diagram shows a wall that is to be covered with identical square tiles. The shaded area is already tiled.  Express the area of the tiled portion as a **decimal fraction** of the area of the entire wall. **Answer: 0.25**	 The wall consists of 4 rows each with 6 equal squares = $4 \times 6 = 24$ squares. The number of squares that are covered = 4 + 2 = 6 The area of the tiled portion covered as a fraction of the entire wall $= \frac{6}{24} = \frac{1}{4}$ $4\overline{)\,10}\;\;0.25$ $-\;\;8$ $\overline{\;\;20}$				

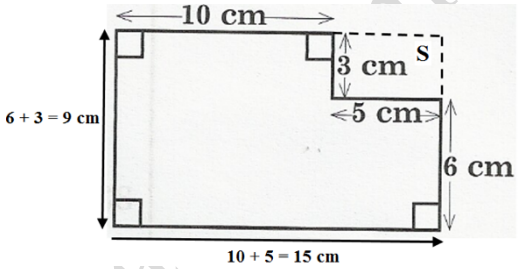
No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
24.	Express as a SINGLE decimal fraction: $\frac{5}{100}+\frac{3}{10}$ **Answer: 0.35**	$\frac{5}{100}+\frac{3}{10}=\frac{5}{100}+\frac{3\times10}{10\times10}$ $=\frac{5}{100}+\frac{30}{100}$ $=\frac{5+30}{100}$ $=\frac{35}{100}$ $=0.35$				
25.	Jerry has 40 stickers that are either red, yellow or blue in colour. There are 24 red ones and equal numbers of blue and yellow. Calculate the percentage of his stickers that are yellow. **Answer: 20%**	Total number of stickers = 40 The number of red stickers = 24 Therefore, the number of blue stickers and yellow stickers = 40 – 24 = 16 $\begin{array}{r} 40- \\ \underline{24} \\ \underline{16} \end{array}$ The number of yellow stickers is the same as the number of blue stickers $=16\div2=8$ The number of yellow stickers = 8 Percentage of yellow stickers $=\frac{\text{No. of yellow stickers}}{\text{Total no. of stickers}}\times100$ $=\frac{8}{40}\times100$ $=20\%$				

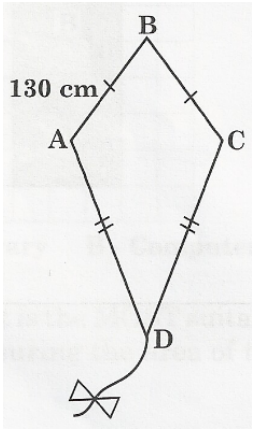
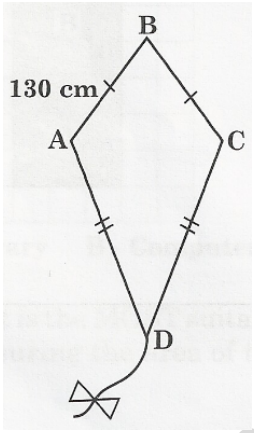
No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
26.	Sasha used 55% of her savings to buy a game. She has \$135 **remaining**. How much was her savings before buying the game? **Answer: \$300**	Sasha uses 55% of her savings to buy a game. The percentage remaining = 100 – 55 = 45% Remaining money = \$135 Therefore, 45% of her savings is \$135. $1\% = \frac{\$135}{45}$ $= \$3$ $100\% = \$3 \times 100$ $= \$300$ Savings before buying the game is 100%. Therefore total savings is \$ 300				
27.	Brian and his father went fishing on the weekend (Saturday and Sunday). They caught 120 fishes on Saturday. Their catch decreased by 25% on Sunday. a) Calculate the number of fishes they caught on Sunday. **Answer: 90 fishes** b) How many fishes did they catch ALTOGETHER on the weekend? **Answer: 210 fishes**	a) The number of fishes caught on Saturday = 120 The catch decreased by 25% on Sunday. 25% of 120 fishes $= \frac{25}{100} \times 120$ $= 30$ So, the number of fishes caught on Sunday $= 120 - 30 = 90$ fishes 1 2 0 – 3 0 9 0 Or Catch decreased by 25%. So, the catch on Sunday $= (100 - 25)\%$ of the catch on Saturday = 75% of 120 fishes $= \frac{75}{100} \times 120$ = 90 fishes b) The total number of fishes caught over the two day period $= 120 + 90 = 210$ fishes				

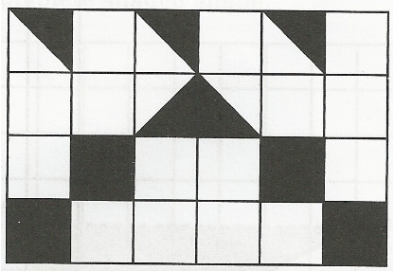
No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
28.	a) Mummy cuts 8 pizzas into SIXTHS. Kori gets $\frac{1}{3}$ of ONE pizza. How many SIXTHS of pizza does he get? **Answer: 2 sixths** b) How many SIXTHS of pizza does Mummy have remaining? **Answer: 46 sixths**	a) 8 pizzas are cut into sixths. (Assuming that each pizza is cut into sixths) Kori gets $\frac{1}{3}$ of one pizza. Each pizza has 6 sixths. Therefore, Kori gets $\frac{1}{3}(6)$ sixths $= 2$ sixths b) The total number of sixths in all 8 pizzas $= 8 \times 6 = 48$ Since Kori gets 2 sixths, then the number of sixths remaining $= 48 - 2$ $= 46$ Note: It would have been better to have said: Mummy cuts 8 pizzas, each into sixths…				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
29.	The following diagram represents the floor space of the library (A) and the computer room (B) at Central Government School. The diagram consists of identical squares.  **A – Library B – Computer Room** a) What is the MOST suitable unit for measuring the area of the floor? **Answer: Square metres or m^2** b) Each floor space has to be covered with carpet. Which room has the SMALLER floor space to be covered? **Answer: Computer room B** c) Which room has the smaller perimeter? **Answer: Library A**	a) Since the floor is best measured in metres (m), then the most suitable unit for measuring the area of the floor will be square metres (m^2). b) Figure A (the library) is square of side 5 units. Consider the length of 1 square as 1 unit. The area of A $= 5 \times 5$ $= 25$ square units Figure B (the computer room) is rectangular with length 8 units and width 3 units. The area of B $= 8 \times 3$ $= 24$ square units $24 < 25$ Therefore, the computer room, B, has a smaller floor space than the library, A. c) The perimeter of the square library A $= 5 \times 4$ $= 20$ units The perimeter of the rectangular computer room B $= 2(3+8)$ $= 22$ units $20 < 22$ Hence, the library (A) has the smaller perimeter.				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
30.	The following diagram shows a rectangular box with dimensions 6 cm × 9 cm × 18 cm and a small cube with sides 3 cm.  How many small cubes are needed to completely fill the rectangular box? **Answer: 36 cubes**	The dimensions of the rectangular box = 6 cm × 9 cm × 18 cm The dimensions of the cube = 3 cm × 3 cm × 3 cm The number of cubes that are needed to completely fill the box $= \frac{6 \times 9 \times 18}{3 \times 3 \times 3}$ $= 2 \times 3 \times 6$ = 36 cubes				
31.	Calculate the area of the following shape.  **Answer: 120 cm²**	 The compound shape is divided into two simpler shapes, *A* and *B*, as shown. Rectangle A has dimensions 10 cm by 9 cm Rectangle B has dimensions 5 cm by 6 cm Area of rectangle $A = 9 \times 10 = 90$ cm² Area of rectangle $B = 5 \times 6 = 30$ cm² Total area of the entire shape = Area of *A* + Area of *B* $= 90 + 30$ $= 120$ cm² **OR**  				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
		The compound shape is divided into two simpler shapes, P and Q, as shown. Rectangle P has dimensions 10 cm by 3 cm Rectangle Q has dimensions 15 cm by 6 cm Area of $P = 3 \times 10 = 30$ cm^2 Area of $Q = 15 \times 6 = 90$ cm^2 Total area of the entire shape = Area of P + Area of Q $= 30 + 90$ $= 120$ cm^2 **OR**  The region S is added to complete a larger rectangle measuring 15 cm by 9 cm. The area of the shape = Area of the larger rectangle – Area of rectangle S $= (15 \times 9)$ cm^2 $- (5 \times 3)$ cm^2 $= (135 - 15)$ cm^2 $= 120$ cm^2				
32.	Mrs. Chin got a loan of \$6 000 from a credit union. She took 3 years to repay the loan at the simple interest rate of 5% per annum. Calculate the TOTAL amount of money that Mrs. Chin repaid. **Answer: \$6 900**	The amount of the loan = \$6 000 (Principal) Time of repayment = 3 years (Time) Simple interest rate = 5% per annum (Rate) $\text{Simple Interest} = \frac{\text{Principal} \times \text{Rate} \times \text{Time}}{100}$ $= \frac{\$6\,000 \times 5 \times 3}{100}$ $= \$900$ The total amount repaid = Principal + Simple interest $= \$6000 + \$900$ $= \$6900$				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
33.	In the following shape, ABCD, the sides AB and BC are both equal to 130 cm, and sides AD and CD are equal in length. The perimeter of the shape is 660 cm.  Calculate the length of the side CD. **Answer: CD = 200 cm**	 AB = BC = 130 cm The length of AB + the length of BC $= (130 + 130)$ cm $= 260$ cm The perimeter of the shape = 660 cm Therefore, the length of CD + length of DA $= (660 - 260)$ cm $= 400$ cm Now, CD = DA Therefore, the length of CD $= \frac{1}{2}(400)$ cm $= 200$ cm				

No.	TEST ITEMS	WORKING COLUMN	Do Not Write Here			
				KC	AT	PS
34.	The side of each square on the following grid is 3 cm.  Complete EACH of the following statements. a) The area of ONE square on the grid is _____ cm^2. b) The TOTAL shaded area on the grid is _____ cm^2. **Answer:** a) **The area of ONE square on the grid is 9 cm^2.** b) **The TOTAL shaded area on the grid is $58\frac{1}{2}$ cm^2.**	a) Length of each square on the grid = 3 cm. Therefore, the area of one square on the grid $= (3 \times 3)\ cm^2$ $= 9\ cm^2$ b) The shaded area consists of 4 whole squares and 5 triangles. Each triangle is one half of the area of the square. Therefore, the area of one triangle $= \frac{3 \times 3}{2}\ cm^2$ $= 4\frac{1}{2}\ cm^2$ The shaded area comprises 4 whole squares and 5 half squares The total area of the shaded region $= (4 \times 9) + \left(5 \times 4\frac{1}{2}\right) cm^2$ $= 36 + \left(5 \times \frac{9}{2}\right) cm^2$ $= \left(36 + 22\frac{1}{2}\right) cm^2$ $= 58\frac{1}{2}\ cm^2$ OR We can choose to join two triangles to form a square and count the number of shaded squares in the diagram. Number of shaded squares = $6\frac{1}{2}$ or $\frac{13}{2}$ Area of one square = 9 cm^2 Area of $6\frac{1}{2}$ squares $= 9 \times 6\frac{1}{2} = 9 \times \frac{13}{2} = \frac{117}{2} = 58\frac{1}{2}\ cm^2$				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS

35. Mr. Lewis needs to buy some materials. He receives the following cost statements from two hardware stores, A and B, respectively.

HARDWARE STORE A

Quantity	Material	Unit Cost	Price
4	Bags of cement	$30.00	$120.00
1	Load of sand	$700.00	$700.00
50	Bricks	$5.00	_____
		Total	_____

Transportation $80.00

HARDWARE STORE B

Quantity	Material	Unit Cost	Price
4	Bags of cement	$35.00	$140.00
1	Load of sand	$700.00	$700.00
50	Bricks	$6.50	$325.00
		Total	$1165.00

Transportation Free! Free! Free!

a) Complete the bill statement for the materials from Hardware Store A.

b) The hardware store MUST transport the materials. Which hardware store offers Mr. Lewis the better purchase?

Answer: Hardware Store A

a) 50 bricks at \$5.00 each will cost $\$5.00 \times 50 = \$250$.

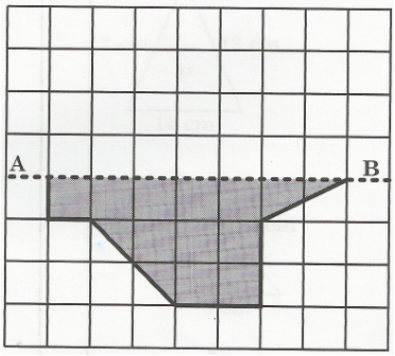
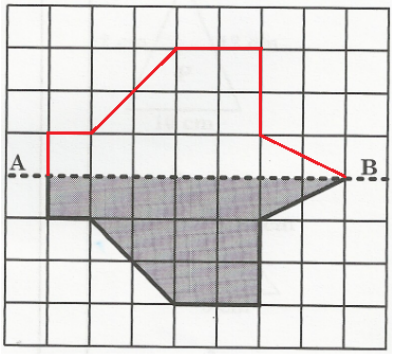
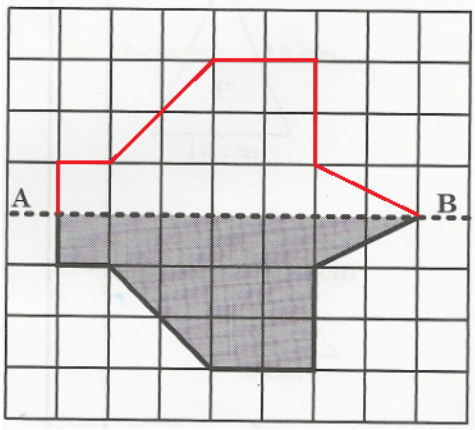
Total cost of the items at Hardware Store A

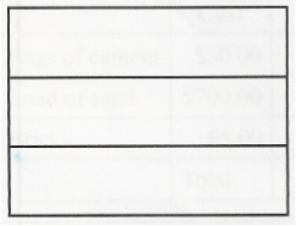
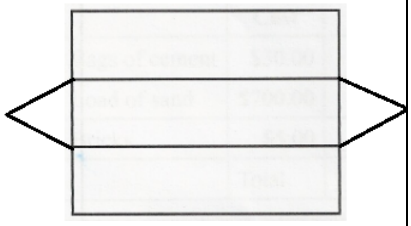
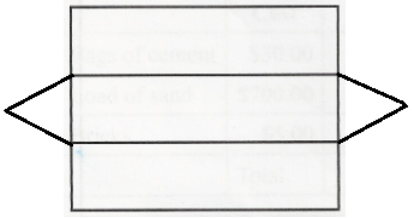
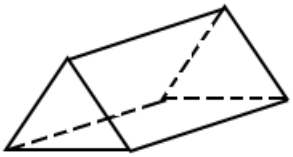
$$\begin{aligned} &= \$\ 1\,2\,0 \\ &\$\ 7\,0\,0 + \\ &\$\ 2\,5\,0 \\ &\$1\,0\,7\,0 \end{aligned}$$

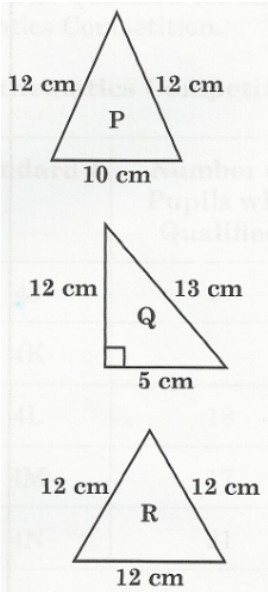
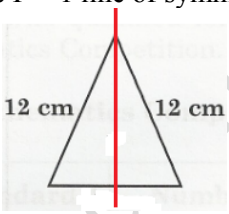
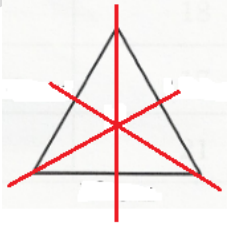
Cost of transportation = \$80.00
Therefore, the cost of materials and transportation at Hardware Store A
$= \$1070 + \$80$
$= \$1\,150$

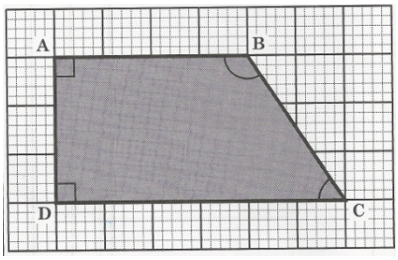
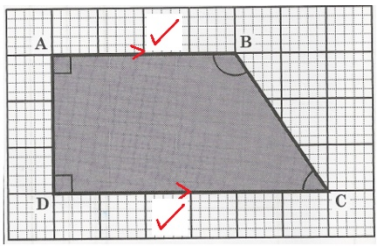
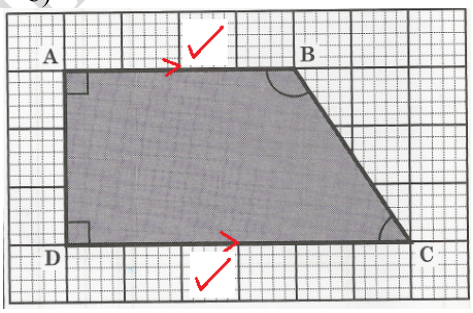
b) The total cost of the materials at Hardware Store B, which offers free transportation is \$1 165.

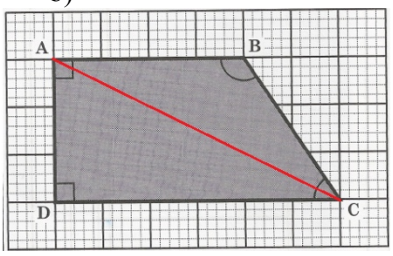
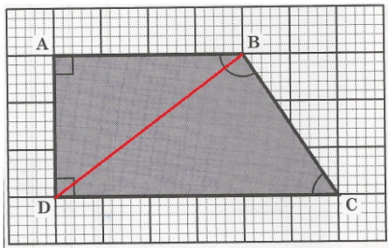
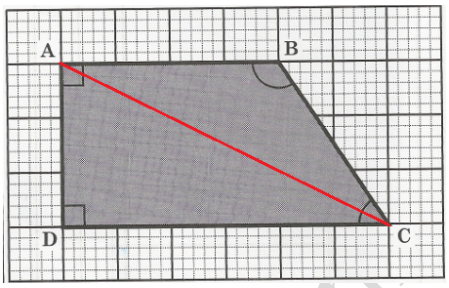
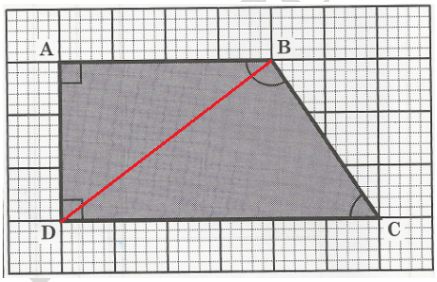
If 'better purchase' is supposed to mean a 'cheaper cost', then Hardware Store A offers the better purchase since \$ 1 150 is less than \$1 165.

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
36.	In the following diagram, the dotted line AB is a line of symmetry for the incomplete shaded shape.  Complete the drawing of the shape. **Answer:**  	 				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
37.	a) The following diagram is incomplete.  Complete the diagram to represent the net of a triangular prism. **Answer**  b) How many edges does a triangular prism have? **Answer: 9 edges**	a)  b)  The two triangular faces have 3 edges each. $= 2 \times 3 = 6$ edges The three rectangular faces have 3 additional edges. The total number of edges in a triangular prism $= 6 + 3 = 9$				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
38.	Three triangles, P, Q and R, are shown below.  a) Which of the following triangles is equilateral? **Answer: R** b) Which of the triangles have AT LEAST ONE line of symmetry? **Answer: P and R**	a) In triangle P, only two sides are equal. Triangle P is isosceles. In triangle Q, all the sides are of unequal length. Triangle Q is scalene. In triangle R, all the sides are of equal length. Triangle, R is equilateral. b) Triangle P – 1 line of symmetry  Triangle Q – No lines of symmetry Triangle R – 3 lines of symmetry  Triangles that have at least one line of symmetry can have ***one or more than one line of symmetry***. Therefore, triangles P and R would meet these requirements.				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
39.	The following diagram shows a flat shaded shape, ABCD.  a) Circle the word from the following list which BEST describes the angle at C. Acute Right-angled Obtuse Reflex **Answer:** a) Acute Right-angled Obtuse Reflex b) On the diagram of ABCD, tick (✓) the TWO sides which are PARALLEL to each other.  	a) Angles A and B are right angles. Angle B is greater than 90° and is obtuse. The angle at C is less than 90°. Hence, it is acute. Note: All of the three other suggestions are clearly incorrect. Hence, there is NO BEST answer. There is only one answer and so the word 'best' should not be used. b)  The sides AB and DC are parallel to each other.				

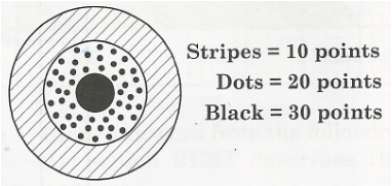
No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
	c) On the diagram, draw ONE line to divide the shape ABCD into TWO triangles. b)  OR  	c) On the diagram, either diagonal AC or BD will divide the quadrilateral which is a trapezium into two triangles.  OR  				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
40.	The following incomplete table shows the number of Standard 4 pupils in a school who qualified for the Mental Mathematics Competition. **Mathematics Competition** **Standard 4** / **Number of Pupils who Qualified** 4J: 17 4K: 4L: 18 4M: 17 4N: 21 The mean number of students who qualified from Standard 4 is 19. How many pupils qualified from Standard 4K? **Answer: 22 pupils**	There are 5 classes in standard 4. The mean number of pupils is 19. Therefore, the total number of pupils $= 19 \times 5$ $= 95$ Hence, 17 + the number of pupils in 4K + 18 + 17 + 21 = 95 73 + the number of pupils in 4K = 95 The number of pupils in 4K $= 95 - 73$ $= 22$				

SECTION III

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*		
				KC	AT	PS

41. Suri and Mali played a game of darts. Each made six strikes. The following diagram shows the number of points earned for striking the patterns on the dart board.



a) Suri made 2 strikes on stripes, three on dots and one on black. What is her TOTAL score?

Answer: 110 points

b) Mali scored 150 points by striking each pattern AT LEAST ONCE. Complete the following score sheet to show how she scored 150 points.

Pattern	Number of Strikes	Score
Stripes	_____	_____
Dots	1	20
Black	_____	_____
Total	**6**	**150**

a) Two strikes on stripes scores
$10 \times 2 = 20$ points
Three strikes on dots scores
$20 \times 3 = 60$ points
One strike on black scores
$30 \times 1 = 30$ points

Total score:

$$\begin{array}{r} 20 \\ 60 + \\ \underline{30} \\ 110 \text{ points} \end{array}$$

b) Mali strikes each pattern at least once;
Stripes: $1 \times 10 = 10$ points
Dots: $1 \times 20 = 20$ points
Black: $1 \times 30 = 30$ points
Total $= 60$ points
Total score $= 150$ points
Therefore, remaining points
$= 150 - 60 = 90$ points
And, remaining strikes $= 6 - 3 = 3$

To obtain the remaining 90 points in 3 strikes, Mali must strike the black area 3 times. Other areas would require more than 3 strikes to obtain a total of 90 points.
$30 \times 3 = 90$ points.
Her score sheet is shown below.

Pattern	Number of Strikes	Score
Stripes	**1**	**10**
Dots	1	20
Black	**4**	**120**
Total	**6**	**150**

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
	Answer: 	Pattern	Number of Strikes	Score
---	---	---
Stripes	**1**	**10**
Dots	1	20
Black	**4**	**120**
Total	**6**	**150** | c) What is the LOWEST score possible if in the six strikes, a player hits EACH pattern at LEAST ONCE? **Answer: 90 points**	c) The lowest score possible in six strikes with the player hitting each pattern at least once. Hitting each pattern at least once would result in a score of 10+20+30 = 60 points The player has 3 more strikes and must hit the target with the smallest score to have a score that is as low as possible. The player must therefore hit the stripes 3 times. So, the total number of strikes for each pattern will be calculated as follows: Stripes: 3+1 = 4 strikes Dots: 1 strike Black: 1 strike 4 strikes of stripes scoring 10 points each = 40 points 1 strike of dots scoring $20 \times 1 = 20$ 1 strike of black scoring $30 \times 1 = 30$ Total Points = 4 0 2 0 + 3 0 9 0				
42.	Use the numbers given in the box below to complete the statements which follow. 6 36 11 21 49 24 a) The SQUARE numbers in the box are _____. **Answer: 36 and 49**	a) 6, 11, 21 and 24 are not square numbers. However, $36 = 6 \times 6$ and $49 = 7 \times 7$ are therefore the only square numbers in the box.				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
	b) The SQUARE ROOT of 121 is _____. **Answer: 11** c) The TWO numbers which have a product that is equal to the SQUARE of 12 are **Answer: 6 and 24**	b) The square root of $121 = \sqrt{121} = 11$ since $11 \times 11 = 121$. c) The square of 12 is $12 \times 12 = 144$. The two numbers from the box whose product is 144 are 6 and 24, since $6 \times 24 = 144$.				
43.	Akil saved \$50 at the end of each week to buy the pair of roller skates shown below.  **ROLLER SKATES** a) How many weeks did it take him to save \$500? **Answer: 10 weeks** b) He paid in cash and received a discount. After discount, he paid \$400. What was the percentage discount he received? **Answer: 20%**	a) The amount saved per week = \$50 Total that had to be saved = \$500 Therefore, the number of weeks that Akil would take $= \frac{\text{Total amount required}}{\text{Amount saved per week}}$ $= \frac{\$500}{\$50}$ $= 10$ weeks b) Akil paid \$400. Therefore, the discount $= \$500 - \$400$ $= \$100$ The percentage discount $= \frac{\text{Discount}}{\text{Original Price}} \times 100$ $= \frac{100}{500} \times 100$ $= 20\%$				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS

c) Akil paid the cashier the EXACT $400 which included ONE or more of EACH bill.

Complete the table below to find the LEAST number of bills that Akil gave the cashier.

Bill	$100	$50	$20	$10	$5	$1
Number of Bills						5

Answer: 13 bills

Bill	$100	$50	$20	$10	$5	$1
Number of Bills	3	1	1	2	1	5

c) Akil pays $400 using five $1 bills and at least one of each of the other bills.

$$1 \times \$100 = \$100$$
$$1 \times \$50 = \$50$$
$$1 \times \$20 = \$20$$
$$1 \times \$10 = \$10$$
$$1 \times \$5 = \$5$$
$$5 \times \$1 = \$5$$

This would amount to $190 and he would need to make up $210 more to pay the $400 bill.

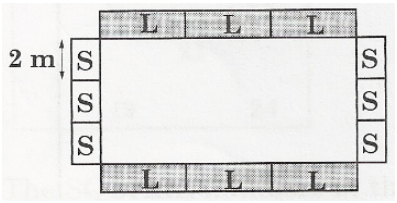
The least number of bills required to make up $210 is

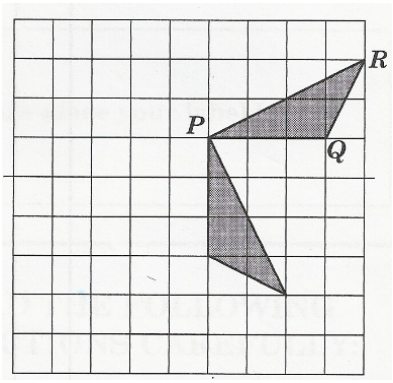
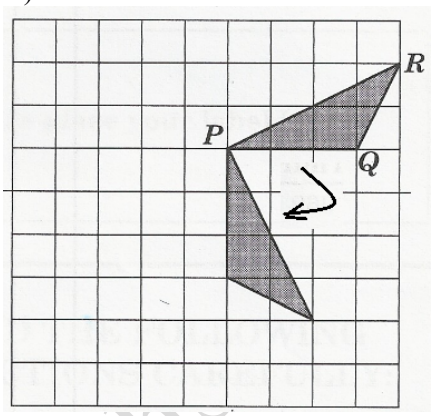
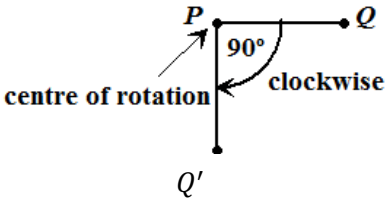
$$2 \times \$100 = \$200$$
$$1 \times \$10 = \$10$$

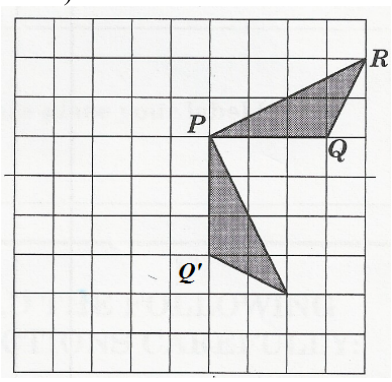
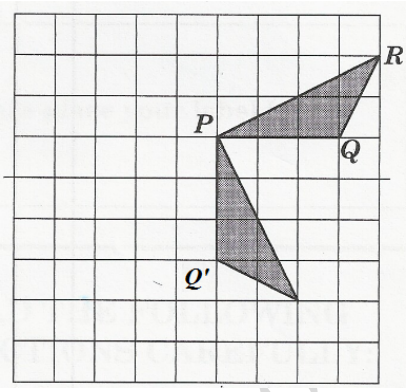
He will now have to use
2+1= 3 hundred-dollar bills
1+1=2 ten-dollar bills
So, his total of $400 will be made up as follows:

Bill	$100	$50	$20	$10	$5	$1
Number of Bills	3	1	1	2	1	5

The least number of bills
$= 3+1+1+2+1+5$
$= 13$

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
44.	The following diagram shows the number of long mats (L) and short mats (S) arranged around a rectangular playing field.  The length and width, in metres, of each type of rectangular mat are shown below.  Calculate: a) The length of the playing field. **Answer: 12 m** b) The width of the playing field. **Answer: 6 m** c) The area of a short mat. **Answer: 1 m^2** d) The number of short mats that would be needed to cover the area of the playing COMPLETELY. **Answer: 72 short mats**	a) The length of the playing field is '3 times' the length of a long mat (L). $= 3 \times 4 \text{ m}$ $= 12 \text{ m}$ b) The width of the playing field is 3 times the length of a short mat (S). $= 3 \times 2 \text{ m}$ $= 6 \text{ m}$ c) The area of short mat (S) $= (2 \times 0.5) \text{ m}^2$ $= 1 \text{ m}^2$ d) The area of the playing field = Length × Width $= (12 \times 6) \text{ m}^2$ $= 72 \text{ m}^2$ Therefore, the number of short mats needed to cover the playing field $= \dfrac{\text{Area of the playing field}}{\text{Area of a short mat}}$ $= \dfrac{72 \text{ m}^2}{1 \text{ m}^2}$ = 72 short mats				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
45.	The following diagram shows a triangle, PQR, and the position of its image after a movement.  a) Circle the word from the following list which BEST describes triangle PQR. Right-angled Isosceles Scalene Equilateral b) Identify the type of movement. **Answer: Rotation** c) Describe the movement FULLY. **Answer: A clockwise rotation of 90° about *P* or $\frac{1}{4}$ turn clockwise about *P*.**	a) The three sides of triangle PQR are unequal. The triangle PQR is therefore scalene. b)  The movement changes the orientation of the object. It is neither a slide nor a flip. It is clearly a turn or a rotation. c) Considering the horizontal line, PQ on the object and the corresponding image of PQ' which is vertical.  The movement from PQ to PQ' is a clockwise rotation of 90° about P or $\frac{1}{4}$ turn clockwise.				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
	d) Label the image of Point Q as Q'. **Answer:** d)  	d) Q' is labelled in the diagram below.  				
46.	The following table shows the number of chairs rented and returned to Zippy Party Rentals for the period Monday to Friday of a week in May. **Chair Rentals** Mon / Tue / Wed / Thur / Fri Number of Chairs rented: 113 / 367 / 258 / 969 / 1083 Number of Chairs returned: 46 / ___ / 96 / ___ / 62 a) One which day was the rental chairs CLOSEST to 1 000? **Answer: Thursday** b) The number of chairs returned for the week was 306. Calculate the number of chairs returned on Thursday if twice as many were returned on Tuesday as returned on Thursday.	a) Consider the number of chairs rented on Thursday and Friday. Thursday - 969. $1000 - 969 = 31$ Hence, it is 31 from 1 000. Friday – 1 083. $1083 - 1000 = 83$ Hence, it is 83 from 1 000 31 is less than 83. Therefore, the chair rental was closest to 1 000 on Thursday. b) The number of chairs returned on Monday, Wednesday and Friday $= 46 + 96 + 62$ $= 204$ $\begin{array}{r} 46 \\ 96+ \\ \underline{62} \\ 204 \end{array}$				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
	Answer: 34 chairs c) What is the mean number of chairs rented over that period in May? **Answer: 558 chairs**	Therefore, the number of chairs that were returned on Tuesday and Thursday altogether $= 306 - 204$ $= 102$ $\begin{array}{r} 3\,0\,6 - \\ 2\,0\,4 \\ \hline 1\,0\,2 \end{array}$ Twice as many chairs were returned on Tuesday as were returned on Thursday. Tue | Thurs | Thurs Therefore, the number returned on Tuesday: $= \frac{102}{2+1}$ $= \frac{102}{3}$ $= 34$ c) The mean number of chairs rented $= \frac{\text{No. of chairs rented}}{\text{No. of days}}$ $= \frac{113+367+258+969+1083}{5}$ $= \frac{2790}{5}$ $= 558$ chairs per day				

END OF TEST