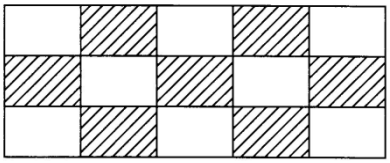
FAS-PASS
Maths

SEA MATHS 2010

Section I

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*		
				KC	AT	PS
1.	Write in figures: One million, two thousand and three. **Answer: 1 002 003**	One million = 1 000 000 Two thousand = 2 000 + Three = 3 1 002 003				
2.	Express the SHADED PART as a COMMON FRACTION of the whole shape.  **Answer :** $\frac{7}{15}$	The whole shape is divided into a total of $5 \times 3 = 15$ equal parts. The total number of shaded parts = 7 The fraction of the whole shape $= \frac{\text{Number of shaded parts}}{\text{Total number of parts}}$ $= \frac{7}{15}$				
3.	Complete the table below. **Answer:**	To complete the table, we have to express 15% as a fraction. $15\% = \frac{15}{100}$ $= \frac{\cancel{15}\ 3}{\cancel{100}\ 20}$ $= \frac{3}{20}$				

Common Fraction	Percentage
	15%
$\frac{3}{5}$	60%

Common Fraction	Percentage
$\frac{3}{20}$	15%
$\frac{3}{5}$	60%

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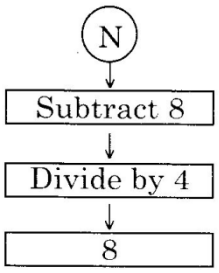
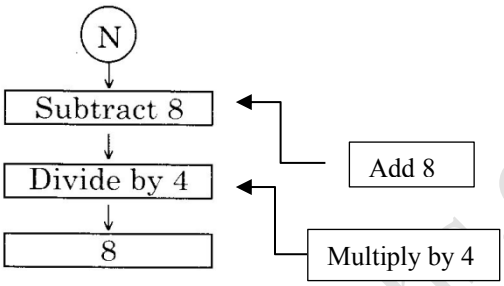
4.	What number, N, should go in the circle to make the operation CORRECT?  **Answer: N = 40**	To find N, we must work backwards, starting at 8 and reverse the operations at each step in the process.  The first step is to multiply 8 by 4: $8 \times 4 = 32$ Then add 8 to the result: $32 + 8 = 40$				
5.	Write in the box the number that CORRECTLY completes the number sentence. $\frac{2}{3} = \frac{}{12}$ **Answer:** $\frac{2}{3} = \frac{8}{12}$	If we multiply the numerator and denominator of a fraction by the same number we obtain an equivalent form. In this example, the number is 4 because $3 \times 4 = 12$ 2×4 $\frac{2}{3} = \frac{\square}{12}$ 3×4 Therefore, the number in the box is 8. **OR** Using the principle of equating cross products, we obtain: $2 \times 12 = 3 \times \square$ $3 \times \square = 2 \times 12$ $\therefore \square = \frac{2 \times 12}{3}$ $= 8$				

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6.	At the market, a mother bought some fruits: 3 oranges, 4 pears and 5 mangoes. What FRACTION of the fruits was pears? **Answer:** $\frac{1}{3}$	Total number of fruits that Mother bought $= 3 + 4 + 5$ $= 12$ Number of pears = 4 The fraction of the fruits that is pears $= \frac{\text{Number of pears}}{\text{Total number of fruits}}$ $= \frac{4}{12}$ $= \frac{1}{3}$				
7.	Ken eats 4 plums each day. How many plums would he eat in TWO weeks? **Answer: 56 plums**	Ken eats 4 plums each day. The number of days in 2 weeks $= 7 \times 2$ $= 14$ The number of plums that Ken eats in 2 weeks = No. of plums he eats each day $\times$ No. of days in 2 weeks $= 4 \times 14$ $= 56$ plums				
8.	At a school bazaar, every seventh student who entered in the first hour was admitted free. If 46 students entered in the first hour, how many of them entered free? **Answer: 6 students**	If every seventh student will be admitted free, then these students would be the 7^{th}, 14^{th}, 21^{st}, 28^{th}, 35^{th} and 42^{nd} student. This amounts to 6 students. The number who entered free in the first hour is 6.				

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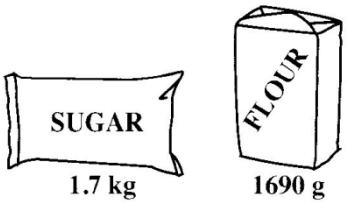
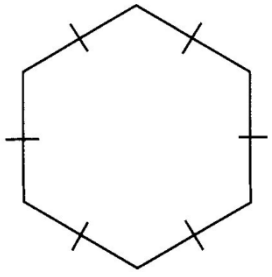
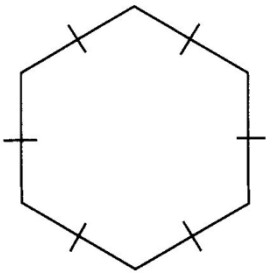
9.	Which of the two sacks has the SMALLER mass?  **Answer: Sack of flour**	The mass of the sack of sugar = 1.7 kg Recall 1000 g = 1 kg Mass of sugar in grams $= 1.7 \times 1000$ $= 1700$ g Mass of flour = 1690 g 1690 g is less than 1700 g. The sack of flour has the smaller mass.				
10.	A ball is bought for \$35.00 and sold for \$48.00. Calculate the profit made in dollars. **Answer: \$13.00**	Cost price of ball = \$35.00 Selling price of ball =\$48.00 The profit = Selling price – Cost price = \$48.00 – \$35.00 = \$13.00 Profit = \$13.00				
11.	A garden has the shape shown below with all the sides of equal length. The perimeter is 72 metres.  What is the length of ONE side of the garden? **Answer: 12 m**	The figure shows the shape of the garden  The figure is made up of 6 equal sides and has perimeter = 72 m The length of each of the 6 equal sides $= \frac{\text{Perimeter}}{\text{Number of sides}}$ $= \frac{72 \text{ m}}{6}$ $= 12$ m				

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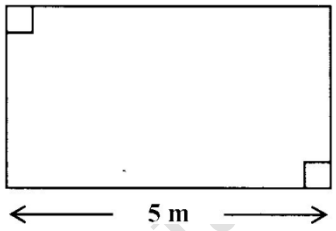
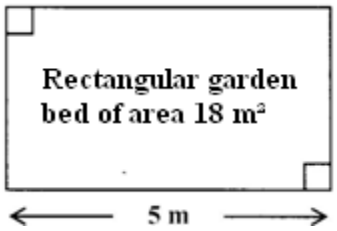
12.	Sally began reading a book at 8:17 p.m. She took a break after reading for half an hour. At what time did she take a break? **Answer: 8:47 p.m.**	Sally starts to read at 8:17 p.m. Sally takes a break after reading for $\frac{1}{2}$ of an hour. $\frac{1}{2}$ of an hour $= \frac{1}{2} \times 60$ minutes $= 30$ minutes The time that Sally took the break $= 8:17 +$ $\underline{:30}$ $\underline{8:47}$ The time that Sally took the break was 8:47 p.m.				
13.	A rectangular garden bed is 5 metres long and has an area of 18 square metres.  How wide is the garden bed? **Answer:** $\mathbf{3\frac{3}{5}}$ **m**	 Area of the rectangular bed = 18 square metres (m^2) The length of the bed = 5 m Area of rectangle = Length × Width $5 \times$ Width of bed $= 18$ Width of bed $= \frac{18}{5}$ $= 3\frac{3}{5}$ m				

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No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
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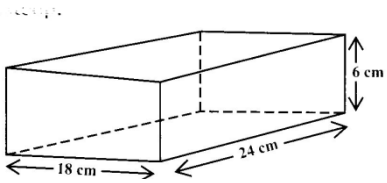
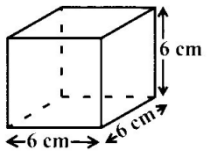
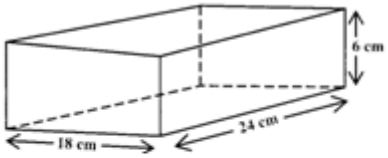
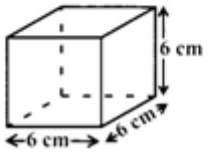
14.	A rectangular box is 18 cm wide, 24 cm long and 6 cm deep.  How many cubes with edges of 6 cm will completely fill the box?  **Answer: 12 cubes**	Dimensions of the rectangular box = 18 cm by 24 cm by 6 cm **Rectangular Box**  **Cube**  The cube is of side 6 cm The number of cubes required to fill the box $= \frac{\text{Volume of box}}{\text{Volume of cube}}$ $= \frac{18 \times 24 \times 6}{6 \times 6 \times 6}$ $= 12$ cubes **OR** Since the side cube measures 6 cm, Number of cubes that fit along the length of the box = 24 ÷ 6 = 4 Number of cubes that fit along the width of the box = 18 ÷ 6 = 3 Number of cubes that fit along the height of the box = 6 ÷ 6 = 1 The number of cubes required to fill the box = 4 × 3 × 1 = 12				

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No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
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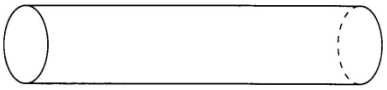
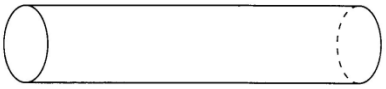
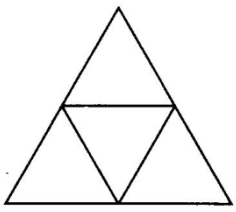
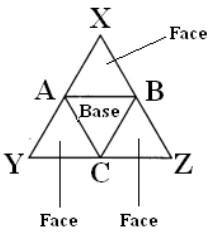
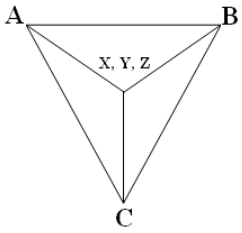
15.	Jessica bought a blouse for \$80.00 and sold it for \$60.00. Calculate the percentage loss on the sale? **Answer: 25%**	The cost of the blouse = \$80 Selling price = \$60 which is less than the cost price. Hence, there is a loss. Loss = Cost Price – Selling price = \$80 – \$60 = \$20 The percentage loss $= \frac{\text{Loss}}{\text{Cost price}} \times 100\%$ $= \frac{20}{80} \times 100 = 25\%$				
16.	A picture of a solid is shown below.  What is the name of the solid? **Answer: Cylinder**	 The solid shown has two identical circular faces and a curved surface. The solid is a cylinder or better called a right, circular cylinder.				
17.	A net of a solid is shown below.  What is the name of the solid formed when the net is folded? **Answer: Triangular based pyramid**	 ABC is the triangular base. ABX, ACY and BCZ form 3 triangular faces, drawn from the base. When folded, X, Y and Z will meet at the apex. A triangular based pyramid is formed. 				

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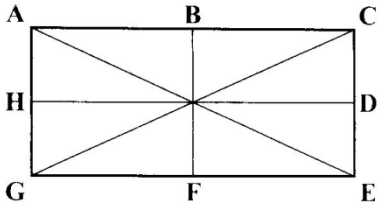
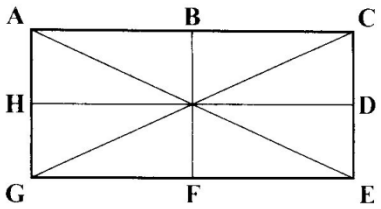
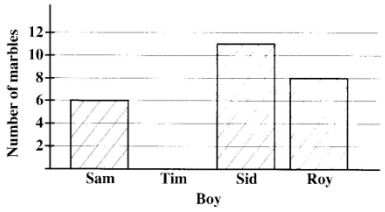
18.	The diagram below is a rectangle. The points B, D, F and H are midpoints of its sides.  Name ONE line of symmetry of the rectangle. **Answer: BF**	 BF is one of the lines of symmetry. It is better called a line of reflective symmetry. (HD is also one such line).				
19.	The incomplete bar graph shows the number of marbles owned by 3 of 4 boys in a club.  Together the 4 boys owned 30 marbles. How many marbles did Tim own? **Answer: 5 marbles**	From the bar graph we can read off that: Sam owns 6 marbles Sid owns 11 marbles Roy owns 8 marbles These three boys own a total of $6 + 11 + 8 = 25$ marbles The difference between the total owned by all four boys and the amount owned by Sam, Sid and Roy, will be the number of marbles owned by Tim. Hence, Tim owns $30 - 25 = 5$ marbles				
20.	The bowler obtained the following number of wickets in 9 matches: 3, 1, 4, 6, 4, 2, 4, 1, 3 What is the MODAL number of wickets? **Answer: 4**	The mode is the item that occurs most often or frequently in any set of data values. By observation of the data, we note that the number 4 occurred three times (3). All other scores had frequencies lower than 3. Hence, the modal number of wickets is 4.				

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Section II

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21.	There are 60 donuts in a glass case. Eighteen of them are chocolate coated. What percentage of donuts is NOT chocolate coated? **Answer: 70%**	The number of donuts in the case = 60 The number of donuts that are chocolate coated = 18 The number that are not chocolate coated = 60 – 18 = 42 The fraction of the donuts that are not chocolate coated is $\frac{42}{60}$. To express this as a percent, we multiply by 100% which is equivalent to one whole. $= \frac{42}{60} \times 100\% = 70\%$				
22.	If 75% of a class of 32 students are present, how many students are absent from the class? **Answer: 8 students**	The number of students in the class = 32 The percentage of students present = 75% The percentage of students absent = (100 – 75)% = 25% The number of students absent = 25% of 32 $= \frac{25}{100} \times 32$ $= 8$ **OR** The number of students present = 75 % of the total of 32 $= \frac{75}{100} \times 32$ $= 24$ The number of students absent = The total number of students in class – the number of students present = 32 – 24 = 8				

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No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*		
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23.	Three mixed numbers from the set below will produce a WHOLE number when added. $3\frac{1}{2}$ | $1\frac{1}{8}$ | $2\frac{7}{12}$ | $4\frac{3}{8}$ What are the THREE numbers? **Answer: $3\frac{1}{2}$, $1\frac{1}{8}$ and $4\frac{3}{8}$**	Three of the numbers, $3\frac{1}{2}$, $1\frac{1}{8}$, $2\frac{7}{12}$ and $4\frac{3}{8}$ total a whole number. Consider the fractional part of each of the four numbers to see which three will total a whole number. $\frac{1}{2}$, $\frac{1}{8}$, $\frac{7}{12}$ and $\frac{3}{8}$ We can deduce that the sum of the second and fourth fraction is one half, since $\frac{3}{8}+\frac{1}{8}=\frac{4}{8}=\frac{1}{2}$ But the fractional part of the first is also $\frac{1}{2}$ So $\frac{1}{2}+\frac{1}{8}+\frac{3}{8}=1$ It follows that the three fractions that produce a whole number, when added are the first, second and fourth. These are: $3\frac{1}{2}$, $1\frac{1}{8}$ and $4\frac{3}{8}$. We need not consider the whole number part of each of these mixed numbers because when we add them (3+1+4), we are certain to get a whole number.				

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No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
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24.	The same pattern is followed throughout in the sequence below. 1 2 3 5 8 13 ☐ ☐ What are the next TWO numbers in the sequence? **Answer: 21 and 34**	1 2 3 5 8 13 ☐ ☐ We notice the next number in the pattern is larger than the number before. Hence, the next number is obtained by either multiplication or addition. Since the numbers are not multiples of each other we can rule out multiplication. Adding the first and second numbers, $1 + 2 = 3$ Adding the second and third numbers, $2 + 3 = 5$ Adding the third and fourth numbers, $3 + 5 = 8$ Adding the third and fourth numbers, $5 + 8 = 13$ The next two numbers in the pattern are: $8 + 13 = 21$ and $13 + 21 = 34$				
25.	Sammy planted 526 heads of lettuce. Don planted 98 more than Sammy and 49 more than Linda. a) How many heads of lettuce did Don plant? **Answer: 624** b) How many heads of lettuce did Linda plant? **Answer: 575** c) Calculate the number of heads of lettuce planted ALTOGETHER. **Answer: 1725**	Sammy planted 526 heads of lettuce. a) Don planted 98 more than Sammy Don planted 526 + 98 = 624 heads of lettuce. b) Don planted 49 more than Linda. We can also say that Linda planted 49 less than Don. Linda planted 624 – 49 = 575 heads of lettuce. c) Total number of heads of lettuce planted by all three: = 526 + 624 + 575 = 1725				

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26.	A school received 25 boxes of pencils. Each box contained 36 pencils. The pencils were distributed EQUALLY among 9 classes. How many pencils did EACH class receive? **Answer: 100 pencils**	The school received 25 boxes of pencils. Each box has 36 pencils. The total number of pencils received $= 25 \times 36$ $= 900$ pencils The pencils (900) were distributed equally among 9 classes. Each class will receive $\frac{\text{Total number of pencils}}{\text{Total number of classes}} = \frac{900}{9}$ $= 100$ pencils				
27.	Calculate: $7\frac{2}{5} - 2\frac{1}{4}$ **Answer: $\mathbf{5\frac{3}{20}}$**	$7\frac{2}{5} - 2\frac{1}{4}$ $= 7 - 2 + \frac{2}{5} - \frac{1}{4}$ $= 5 + \frac{8}{20} - \frac{5}{20}$ $= 5 + \frac{3}{20}$ $= 5\frac{3}{20}$ Note: $\frac{2}{5} = \frac{8}{20}$ $\frac{1}{4} = \frac{5}{20}$				

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28. The table below shows the number of marks awarded for EACH correct answer in Sections A, B and C of a test.

Section	Number of Marks for Each Correct Answer
A	1 mark
B	3 marks
C	5 marks

Jessica got 16 items correct in Section A and 8 items correct in Section B.

How many items must Jessica get correct in Section C to earn a score of 50 on the test?

Answer: 2 items

Jessica got 16 items correct in Section A, each earning 1 mark.
This gives $16 \times 1 = 16$ marks.

Jessica got 8 items correct in Section B, each earning 3 marks.
This gives $8 \times 3 = 24$ marks.

The total marks earned in both Sections, A and B
= 16 + 24
= 40 marks

To obtain a score of 50, the total marks earned in Sections A, B and C = 50 marks
Hence, Jessica must earn
50 – 40 = 10 marks in Section C.

But, each item in Section C earns 5 marks.

Number of items Jessica must get correct to earn 10 marks in Section C

$= \frac{10}{5}$
$= 2$

(or 2 items @5marks each = 10 marks)

Jessica must get 2 items correct in Section C.

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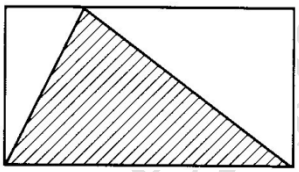
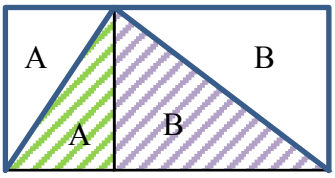
29.	A discount of 15% was given for each cash purchase at a shoe store. How much cash will Derrick pay for a pair of shoes marked at $600.00? **Answer: $510.00**	The marked price for the pair of shoes = $600 The discount = 15% The discount $= \frac{15}{100} \times \$600$ $= \$90$ Derrick pays =($600 - $90) = $510 **OR** The discount = 15% Derrick pays (100 – 15)% of the marked price of $600 for the pair of shoes = 85% of $600 $= \frac{85}{100} \times \$\ 600$ = $ 510				
30.	In the diagram below, the area of the shaded triangle is 36 cm^2.  What is the area of the rectangle? **Answer: 72 cm^2**	 From the diagram, it can be seen that the area of the shaded triangle (A+B) is half the area of the rectangle (2A+2B). Area of a rectangle = 2 × Area of triangle = 2 × 36 cm^2 Area of rectangle = 72 cm^2				

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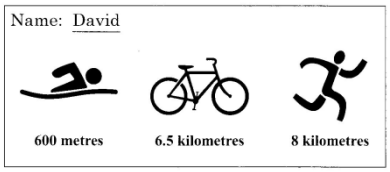
31.	The diagram below shows the distances that David covered in a triathlon.  How many kilometres did David cover during the entire event? **Answer: 15.1 km**	David covered 600 m by swimming $= \frac{600}{1000}$ km (1 km = 1 000 m) $= 0.6$ km by swimming Then David covered 6.5 km by cycling and 8 km by running. Total distance covered $= (0.6 + 6.5 + 8)$ km $= 15.1$ km				
32.	Tony borrowed \$12 000 from a bank at a rate of 8% per annum. a) Calculate the simple interest if he agreed to repay the loan in 2 years. **Answer: \$1 920** b) How much will Tony have to repay the bank? **Answer: \$13 920**	a) Amount borrowed, which is the Principal = \$12000 Rate = 8% per annum Time = 2 years Simple interest $= \frac{\text{Principal} \times \text{Rate} \times \text{Time}}{100}$ $= \frac{\$12000 \times 8 \times 2}{100}$ $= \$1920$ b) Amount to be repaid = Principal + Total Interest = \$12 000 + \$1 920 = \$13 920				

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No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
33.	Michael left home at 7:37 a.m. and arrived at school 43 minutes later. He reached school five minutes before the bell rang. At what time did the bell ring? **Answer: 8:25 a.m.**	The time that Michael left home = 7:37 a.m. The time taken for the journey to school = 43 minutes Arrival time at school is calculated by adding 43 minutes to the time he left home. 1 Adding the minutes 7 : 37 + 37 minutes : 43 43 minutes 8 : 20 a.m. 80 minutes = 1 hr 20 mins Since Michael arrived 5 minutes before the bell rang, then the bell rang at 8 : 20 + : 05 8 : 25 a.m. Time that the bell rang is 8:25 a.m.				
34.	Mr. Ben has to be at work at 9:00 a.m. He must get dressed, eat and walk to work. After getting out of bed, it takes him 15 minutes to get dressed, then 20 minutes to eat and a further 35 minutes to walk to work. a) How long does it take Mr. Ben to get dressed, eat and walk to work? **Answer: 1 hour 10 minutes** b) What is the LATEST time Mr. Ben should get out of bed in order to get to work on time? **Answer: 7:50 a.m.**	a) To get dressed takes 15 minutes To eat takes 20 minutes To walk to work takes 35 minutes Total time taken = 70 minutes 70 minutes = 1 hour 10 minutes Therefore, Mr. Ben takes 1 hour 10 mins to get dressed, eat and walk to work. b) Ben has to arrive at work for 9:00 a.m. He should get out of bed at least 1hr and 10 minutes **before** 9:00 a.m. The latest time Ben should get out of bed is found by taking away 1 hour and 10 min from the time of 9: 00 am 1 hour before 9:00 am is 8:00 a.m. 10 minutes before 8:00 a.m. is 7:50 a.m. The latest time is 7:50 a.m.				

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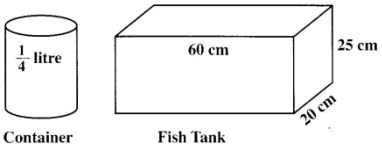
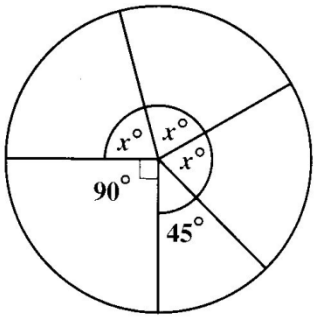
No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
35.	The container shown below is used to fill the fish tank next to it.  a) What is the volume, in LITRES, of the fish tank? **Answer: 30 litres** b) How many full containers are needed to fill the tank completely? **Answer: 120 full containers**	 (1000 cm^3 = 1 litre) a) The volume of the fish tank $= 60 \times 20 \times 25$ cm^3 $= 30000$ cm^3 $= 30\,000 \div 1\,000 = 30$ litres b) One full container holds ¼ of a litre. To fill one litre of the fish tank will require 4 containers To fill 30 litres of the fish tank will require 4 × 30 full containers = 120 full containers OR $30 \div \frac{1}{4} = 30 \times 4 = 120$				
36.	The three angles labeled $x°$ in the diagram below are equal in size.  Calculate the value of x. **Answer: $x = 75$**	The sum of all the five angles in the circle totals 360°. The sum of the two given angles is: $90^0 + 45^0 = 135^0$ The sum of the three remaining angles is: $360^0 - 135^0 = 225^0$ Since all three are the same size, the value of x is: $225 \div 3 = 75$				

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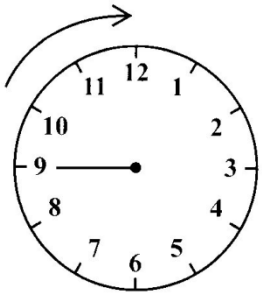
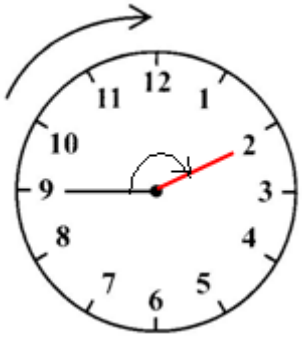
No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
37.	The minute hand of a clock moved from 9 to 2 in the direction of the arrow shown.  Through how many degrees did the minute hand move? **Answer: 150°**	 In a complete revolution, the minute hand turns through 360^0. There are 12 equal angles in one complete turn, and so between any two numbers next to each other, the size of the angle is $360° \div 12 = 30^0$ From 9 to 2, the minute hand turns through 5 of these angles. The angle moved by the minute hand is: $30^0 \times 5 = 150^0$				

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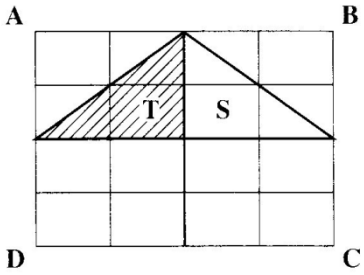
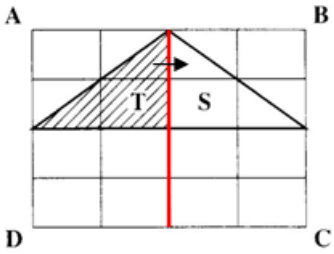
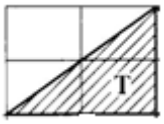
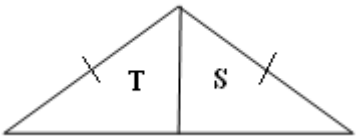
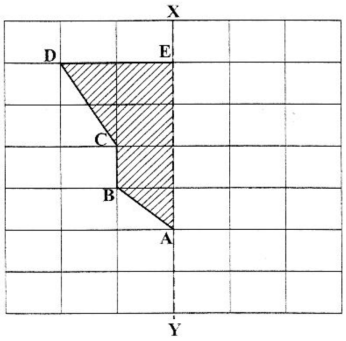
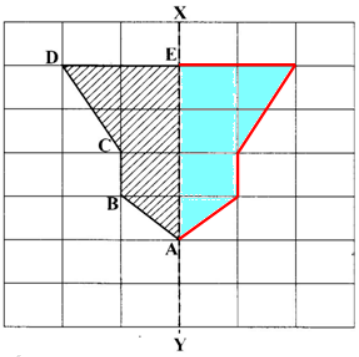
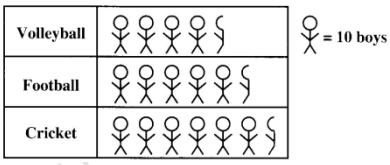
No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*		
				KC	AT	PS
38.	The shaded triangle **T** below was moved to the position of triangle **S**.  a) Name the movement. **Answer: Reflection** b) How many shaded triangles EXACTLY like T would completely cover the rectangle ABCD? **Answer: 8 triangles** c) Circle the term from the list below which BEST describes the triangle formed when T and S are combined as shown. Right-angled Isosceles Equilateral **Answer:** Right – angled Isosceles Equilateral	a)  Triangle T is moved to triangle S. T is flipped over the vertical line to form the image, S. Hence, S is reflection of T in the vertical line, called the mirror line. b)  Triangle T covers one half of the rectangle shown. Two triangles (of the same size as T) will cover the rectangle. The entire figure ABCD comprises 4 rectangles, each of the same size. To completely cover the ABCD will require $4 \times 2 = 8$ triangles exactly like T. c)  When T and S are combined, the resulting triangle has exactly two equal sides as shown. The triangle is isosceles.				

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*		
				KC	AT	PS
39.	The diagram below shows an incomplete shape. Complete the shape so that XY is a line of symmetry.  	XY is a line of symmetry. When the shape is folded along the line XY, the points A and E remain on the line. but the points D, C and B will lie on the opposite side of XY • Point D will lie 2 units from XY • Points C will lie 1 unit from XY • Points B will lie 1 unit from XY The completed figure is shown.  				
40.	The pictograph shows the first choice of sports for boys in Standard 5.  How many boys indicated their choice of sports? **Answer: 165 boys**	Number of boys who chose volleyball as their 1st choice $= 10+10+10+10+5 = 45$ boys Number of boys who chose football as their 1st choice $= 10+10+10+10+10+5 = 55$ boys Number of boys who chose cricket as their 1st choice $= 10+10+10+10+10+10+5 = 65$ boys Total number of boys who indicated their choice = 45 + 55 + 65 = 165 boys **OR** We could add all the pictures to get 4 ½ + 5 ½ + 6 ½ =16 ½ Each picture represents 10 boys and so the number of boys = 16 ½ ×10 = 165.				

Section III

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*			
				KC	AT	PS
41.	At a school fair, 30% of the pies sold had cheese filling, 25% had beef filling and the remaining 90 pies had potato filling. a) What percentage of pies had potato filling? **Answer: 45%** b) How many pies were sold at the fair? **Answer: 200 pies** c) How many MORE cheese pies than beef pies were sold at the fair? **Answer: 10 more pies**	a) Percentage of pies with cheese filling = 30% Percentage of pies with beef filling = 25% This total is 30% + 25% = 55% Remaining percentage of pies = 100% – 55% = 45% Hence the percentage of pies with potato filling = 45% b) The number of pies sold is regarded as the whole and equal to 100% The 90 potato pies represents 45% of the total number of pies. 45% of the pies = 90 1% of the pies = 90 ÷ 45 = 2 100% of the pies = 2 × 100 = 200 Therefore, the total number of pies is 200 c) Cheese pies = 30% Beef pies = 25% Number of cheese pies = $\frac{30}{100} \times 200 = 60$ Number of beef pies = $\frac{25}{100} \times 200 = 50$ There are more cheese pies that beef pies. The difference is 60 – 50 = 10 Hence, there are 10 more cheese pies than beef pies that were sold at the fair. **OR** The percentage difference between the number of cheese pies and beef pies = 30% – 25% = 5% 5% of 200 $= \frac{5}{100} \times 200 = 10$ pies They sold 10 more cheese pies than they sold beef pies.				

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No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*		
				KC	AT	PS
42.	The pupils in Standard Five are seated on benches which can seat either 4 pupils (four-seaters) or 3 pupils (three-seaters). **Five four-seaters and fifteen three-seaters are available.** a) What is the LARGEST number of pupils that can be seated if ONLY the four-seaters are used? **Answer: 20 pupils** b) On Tuesday, 38 pupils are to be seated and ALL the four-seaters MUST be used. What is the SMALLEST number of three-seaters that are needed? **Answer: 6 three-seaters** c) On Thursday, 48 pupils are to be seated. How many of EACH type of benches are needed so that ALL seats are occupied and BOTH types of benches are used? **Answer: 3 four-seaters and 12 three-seaters**	4 pupils sit on four-seaters. There are 5 four-seaters available. If only the four-seaters are used then the largest number of pupils that can be seated = $5 \times 4 = 20$ pupils. a) On Tuesday 38 pupils are seated and all four-seaters are used. Therefore, 20 pupils were seated on four-seaters and $38 - 20 = 18$ pupils remain to be seated on the three-seaters. The number of three-seaters required = $18 \div 3 = 6$ The smallest number of three-seaters required is 6. b) On Thursday 48 pupils are to be seated. All the seats on a bench are to be filled. **Testing possible options** 1. If 5 of the four-seater benches are filled, this seats $5 \times 4 = 20$ pupils. Then the remaining $48 - 20 = 28$ pupils cannot completely fill the three-seater benches since 28 is **NOT** divisible by 3. 2. If 4 of four-seaters benches are filled, this seats $4 \times 4 = 16$ pupils. Then the remaining $48 - 16 = 32$ pupils cannot completely fill the three-seater benches since 32 is **NOT** divisible by 3. 3. If 3 of four-seater benches are filled, this seat $3 \times 4 =$ pupils. Then the remaining $48 - 12 = 36$ pupils can fill all the seats of the three-seater benches since 36 is divisible by 3. **Conclusion** Option 3 satisfies the conditions. The 48 students will occupy 3 of four-seater benches and 12 three-seater benches. $3 \times 4\ seaters = 12\ students$ $12 \times 3\ seaters = 36\ students$ Total = 48 students				

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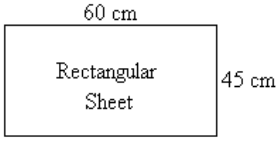
No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*		
				KC	AT	PS
43.	Daniel is making tickets for his drama club from sheets of bristol board measuring 60 cm by 45 cm. a) Calculate the area of ONE sheet of bristol board. **Answer: 2700 cm^2** b) What is the LARGEST number of tickets measuring 9 cm by 3 cm that Daniel can make from ONE sheet of bristol board? **Answer: 100 tickets** c) A ticket costs \$10.00. Daniel collected \$5000.00 when all the tickets were sold. How many sheets of bristol board were used? **Answer: 5 sheets**	a)  Area of 1 sheet of bristol board $= 60 \times 45$ cm^2 $= 2700$ cm^2 b) Each ticket measures 9 cm by 3 cm. Area of one ticket $= 9cm \times 3cm = 27cm^2$ Maximum number of tickets $= \frac{Area\ of\ bristol\ board}{Area\ of\ one\ ticket}$ $= \frac{2700}{27} = 100$ In order to avoid wastage, and get the maximum to fit, he must place 20 tickets along the length and 5 along the width arranged as shown. 20 tickets x 3cm = 60 cm 5 tickets x 9 cm =45 cm c) Daniel collected \$5000 on the sale of tickets costing \$10 each. Number of tickets sold $= \frac{5000}{10} = 500$ tickets 100 tickets can be made from one sheet of bristol board 500 tickets will require 500 ÷ 100 = 5 sheets of bristol board.				

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

44. The diagrams below show the cost of a slice of pizza, a scoop of ice cream and a drink.

$8.00 per slice

$5.00 per scoop

$4.00

a) Mark has 3 slices of pizza, 1 drink and 2 scoops of ice cream. Calculate the cost of his meal.

Answer: $38.00

b) Sandy wishes to get exactly $20.00 in change from a $50.00 note after purchasing a meal. Suggest a possible combination of the THREE items that she can buy.

Answer: A possible combination

2	Slices of pizza	**$16.00**
2	Scoops of ice cream	**$10.00**
1	Drink	**$4.00**
	Total	**$30.00**

a) Cost of 3 slices of pizza at $8.00 each
$= \$8.00 \times 3$
$= \$24.00$
Cost of 1 drink at $4.00 each
$= \$4.00$
Cost of 2 scoops of ice cream at $5.00 each
$= \$5.00 \times 2$
$= \$10.00$

The total cost of these items is
$= \$24.00 + \$4.00 + \$10.00$
$= \$38.00$

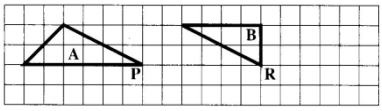
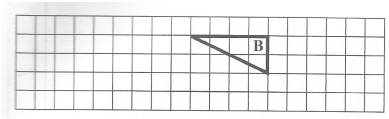
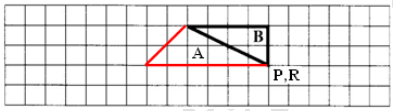
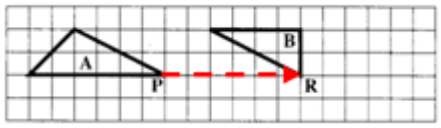
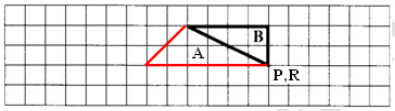
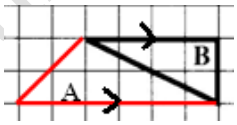
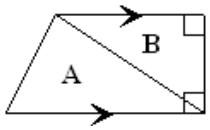
b) From a $50.00 note Sandy wants $20.00 change.
Sandy would wish to spend exactly $50.00 - $20.00 = $30.00

Possible combinations of meals that can cost exactly $30.00 and which includes all the items are:

Item	Unit Price	Quantity	Total
Pizza	$8.00	2	$16.00
Ice cream	$5.00	2	$10.00
Drink	$4.00	1	$4.00
Total			$30.00

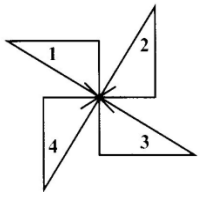
OR

Item	Unit Price	Quantity	Total
Pizza	$8.00	1	$8.00
Ice cream	$5.00	2	$10.00
Drink	$4.00	3	$12.00
Total			$30.00

No.	TEST ITEMS	WORKING COLUMN	*Do Not Write Here*		
				KC	AT	PS
45.	On the grid below are two triangles labeled **A** and **B**.  Triangle **A** slides to the right until the corner at **P** touches the corner **R**. a) How many units did triangle A slide? **Answer: 6 units horizontally** b) Draw the combined shape on the new grid. Triangle B is drawn in position for you.  **Answer:**  c) What is the name given to the combined shape of the two triangles? **Answer: Trapezium** d) How many right angles are there in the combined shape? **Answer: 2 right angles**	a)  For the corner P to meet the corner R, triangle A must slide 6 units horizontally to the right as shown by the dotted line. b)  When P meets point R the completed shape is shown above. c)  In the combined shape, only one pair of opposite sides of a quadrilateral is parallel. Therefore, the combined shape is a trapezium. d)  The combined shape has 2 right angles that are marked off in the diagram.				

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

46. Jeff is playing a game in which he scores points by spinning a pinwheel similar to the one shown below. It is possible to score 1, 2, 3 and 4 points.



Jeff spins the pinwheel twenty times and records his scores in the tally chart below. The tally chart is incomplete.

Points Scored	Tally	Frequency	Total Points
1	|	1	1
2			14
3	|||	3	9
4		9	36

a) Complete the tally chart above by filling in the missing information.

b) What is the modal point scored?

Answer: 4

c) How many points did Jeff score for the twenty spins?

Answer: 60 points

d) Calculate the mean number of points Jeff scored for the twenty spins.

Answer: 3 points per spin

a) Looking at the frequency column, the total adds up to 1+3+9=13. We know that John made 20 spins on the pinwheel, so he must have a frequency of $20 - 13 = 7$ in row 2. The tally marks represent the frequencies so we must also insert 7 tally marks in row 2 in the tally column.

Points Scored	Tally	Frequency	Total points
1	|	1	1
2	𝍸 ||	7	14
3	|||	3	9
4	𝍸 𝍸 |||	9	36

In row 4, in the tally column, we next insert tally marks to represent a frequency of 9.

b) The modal point scored is '4' since it has the highest frequency of 9.

c) From the 20 spins, Jeff would total
$(1 + 14 + 9 + 36) = 60$ points

d) Mean number of points from the 20 spins

$$= \frac{\text{Total points scored}}{\text{Total number of spins}}$$

$$= \frac{60 \text{ points}}{20}$$

$$= 3 \text{ points per spin}$$

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