

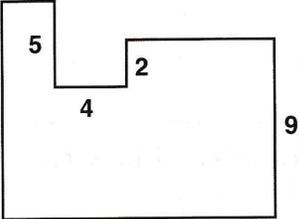
Selective Schools

Paper 11

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1	The sum of the first six odd numbers is	(A) 36	(B) 21
		(C) 42	(D) 30
2	Which of the given results is the smallest?	(A) $\frac{1}{20}$	(B) 0.8
		(C) $\frac{3}{4}$	(D) 70%
3	Subtract the smallest of the following numbers from the largest. 0.10, 0.13, 0.09, 0.11	(A) 0.14	(B) 0.04
		(C) 0.03	(D) 0.01
4	$4^3 - 4^2$ simplifies to	(A) 4	(B) 0
		(C) 48	(D) 1
5	Find the difference between 239.21 and the number formed by swapping the tens digit and the hundredths digit.	(A) 19.98	(B) 99.99
		(C) 9.9	(D) 7.98
6	Four times what number is the same as two thirds of 36?	(A) 6	(B) 96
		(C) 48	(D) 12
7	When I passed the starting line, the clock showed 2 minutes 51 seconds and when I passed the finish line it showed 5 minutes 11 seconds. My time for the race was	(A) 2 minutes 20 seconds	(B) 2 minutes 40 seconds
		(C) 3 minutes	(D) 3 minutes 40 seconds
8	What number must be placed in the box so that the number sentence is true? $216 \div 8 = 9 \times \square$	(A) 4	(B) 9
		(C) 3	(D) 12
9	On day 1, I started out with \$81 and I doubled my money on each day thereafter. Fred started on day 1 with \$16 and trebled his money on each successive day. On which day did we have the same amount?	(A) 6	(B) 5
		(C) 4	(D) 7
10	You can buy 9kg of cheese for \$64.17. How much would 11kg cost?	(A) \$52.50	(B) \$78.43
		(C) \$72.50	(D) \$69.78
11	Using the digits 4, 1, 9, 7 once only, you can make 24 four-digit numbers. Subtracting the smallest of these from the largest gives	(A) 8 262	(B) 6 462
		(C) 7 722	(D) 8 962
12	What is the most likely number to complete the sequence 1, 6, 13, 22, 33, \square ?	(A) 46	(B) 44
		(C) 52	(D) 61

<p>13 You can purchase fruit juices in 4 different sizes. Which is the most economical?</p>	<p>(A) 250mL for \$0.34 (B) 600mL for \$0.84 (C) 1 litre for \$1.35 (D) 2.5 litres for \$3.35</p>
<p>14 Half of the sum of $\frac{1}{2}$ and $\frac{3}{4}$ is</p>	<p>(A) $\frac{1}{2}$ (B) $\frac{1}{4}$ (C) $\frac{1}{3}$ (D) $\frac{5}{8}$</p>
<p>15 The perimeter of a circle is called its</p>	<p>(A) radius (B) diameter (C) sector (D) circumference</p>
<p>16 Only one of the following does not equal 10. Which is it?</p>	<p>(A) $2 \times 3 + 4$ (B) $2 \times (6\frac{3}{4} - 1\frac{3}{4})$ (C) $16 - 2 \times 3$ (D) $\frac{10 + 10}{2 + 2}$</p>
<p>17 The result of subtracting the numbers $2\frac{1}{2}$ and $4\frac{3}{10}$ is</p>	<p>(A) $2\frac{1}{10}$ (B) $1\frac{1}{10}$ (C) $2\frac{2}{5}$ (D) $3\frac{1}{10}$</p>
<p>18 A girl's pocket money is \$12.75 each month. How much would she receive in 12 months?</p>	<p>(A) \$150 (B) \$153 (C) \$175.25 (D) \$147</p>
<p>19 We bought the ingredients for \$7.84 and we sold the lemonade for \$43.12. We made</p>	<p>(A) \$35.18 (B) \$36.28 (C) \$35.28 (D) \$45.28</p>
<p>20 At the sale I sold 3 games at \$19.90 each and 10 toys at \$23.81 each. I received</p>	<p>(A) \$297.80 (B) \$298.80 (C) \$835.10 (D) \$2 440.70</p>
<p>21 If the tax on furniture is 75%, how much tax would you have to pay on a chair costing \$500?</p>	<p>(A) \$375 (B) \$264 (C) \$250 (D) \$125</p>
<p>22 \$88.65 was shared equally between 9 persons. Each person received</p>	<p>(A) \$9.15 (B) \$8.95 (C) \$9.85 (D) \$9.17</p>
<p>23 What is the most likely next number in the series $1, \frac{7}{8}, \frac{3}{4}, \frac{5}{8}, \frac{1}{2}, \square$?</p>	<p>(A) $\frac{3}{8}$ (B) 1 (C) $\frac{1}{3}$ (D) $\frac{1}{4}$</p>

24 The smallest number which is a multiple of the numbers 2, 3, 4, 5 and 6 is	(A) 60 (B) 30 (C) 720 (D) 180								
25 Next year, my age added to my brother's age will be 35. The sum of our ages seven years ago would have been	(A) 20 (B) 27 (C) 26 (D) 19								
<p>Questions 26 - 27 refer to the following diagram. All the angles are right angles and the diagram is not drawn to scale.</p>  <p>The units are in cm.</p>									
26 The perimeter of the figure is	(A) 57 cm (B) 62 cm (C) 60 cm (D) not enough information to tell								
27 The area of the figure is	(A) 160 cm ² (B) 173 cm ² (C) 184 cm ² (D) not enough information to tell								
28 One of the given statements is false. Which is it?	(A) All the radii of a circle are equal. (B) The diameter of a circle is the largest chord. (C) An acute angle is smaller than an obtuse angle. (D) An isosceles triangle has three equal sides.								
Questions 29 -32 refer to the data in Question 29.									
<p>29 The results of a survey of the types of cars that teachers at my school drive were</p> <table border="0"> <tr> <td>Toyotas</td> <td>12</td> </tr> <tr> <td>Fords</td> <td>6</td> </tr> <tr> <td>Nissans</td> <td>4</td> </tr> <tr> <td>Others</td> <td>8</td> </tr> </table> <p>What percentage of the teachers drive Fords?</p>	Toyotas	12	Fords	6	Nissans	4	Others	8	(A) 6% (B) 30% (C) 20% (D) 25%
Toyotas	12								
Fords	6								
Nissans	4								
Others	8								

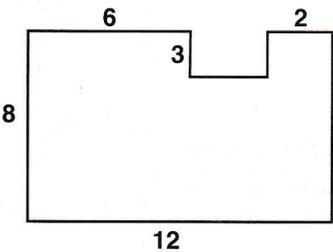
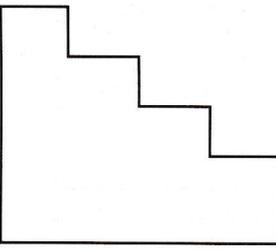
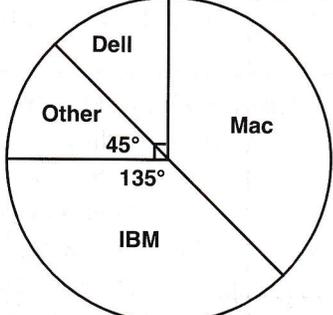
<p>30 What fraction of the cars are Toyotas or Nissans?</p>	<p>(A) $\frac{1}{5}$ (B) $\frac{1}{3}$ (C) $\frac{2}{5}$ (D) $\frac{1}{2}$</p>												
<p>31 If the results of the survey were to be put on a pie chart, the angle at the centre of the sector representing the "Others" would be</p>	<p>(A) 72° (B) 90° (C) 108° (D) 96°</p>												
<p>32 If the results are also to be put on a bar chart of length 15cm, how long in centimetres will the section representing Nissans be?</p>	<p>(A) 2 (B) 8 (C) 6 (D) 4</p>												
<p>33 The number $33\square 2$ is divisible by 13. What digit must replace the box?</p>	<p>(A) 5 (B) 4 (C) 0 (D) 1</p>												
<p>34 When we drive from Sydney to Grafton at an average speed of 80km/h we take 9 hours. How long, in hours, would we take if we averaged 90km/h?</p>	<p>(A) 10 (B) 8 (C) 7 (D) 11</p>												
<p>35 $636\frac{1}{2} = 53$. You could use this result to help evaluate $636\frac{3}{4}$ by</p>	<p>(A) multiplying 636 by 3 (B) multiplying 53 by 48 (C) multiplying 53 by 3 (D) multiplying 636 by 4</p>												
<p>36 5% of a number is 94. The number is</p>	<p>(A) 470 (B) 1 880 (C) $18\frac{1}{2}$ (D) $4\frac{7}{10}$</p>												
<p>37 Find the number which will make the number sentence true $720 \div \square = 18 \times 8$</p>	<p>(A) 10 (B) 6 (C) 9 (D) 5</p>												
<p>38</p> <table border="1"> <tr> <td>3</td> <td>8</td> <td>5</td> <td>4</td> <td>1</td> <td>9</td> </tr> <tr> <td>10</td> <td>25</td> <td>16</td> <td>13</td> <td>4</td> <td></td> </tr> </table> <p>The most likely number which should be placed in the box to complete the pattern would be</p>	3	8	5	4	1	9	10	25	16	13	4		<p>(A) 30 (B) 32 (C) 36 (D) 28</p>
3	8	5	4	1	9								
10	25	16	13	4									
<p>39 I bought 4 shirts. Shirt 1 cost \$39.95 Shirt 2 cost \$83.18 Shirt 3 cost \$57.88 Shirt 4 cost \$63.07 The average cost of the shirts was</p>	<p>(A) \$61.02 (B) \$72.16 (C) \$59.36 (D) \$64.08</p>												

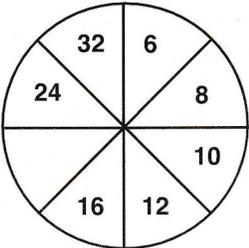
40 Rounded off to the nearest hundred, the number 46 351 becomes	(A) 46 300 (B) 46 350 (C) 46 400 (D) 46 000																
41 Two four-digit numbers have the same number of hundreds. When you subtract them, the number in the hundreds column of the answer will be	(A) 0 or 9 (B) 0 or 1 (C) 8 or 9 (D) 1 or 5																
42 In the magic square below, each row, column and diagonal adds to the same number. Find the number which would be in the position marked x. <table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td>36</td> <td></td> <td></td> <td>30</td> </tr> <tr> <td>14</td> <td>26</td> <td>24</td> <td></td> </tr> <tr> <td>22</td> <td></td> <td>16</td> <td></td> </tr> <tr> <td></td> <td>32</td> <td>x</td> <td>6</td> </tr> </tbody> </table>	36			30	14	26	24		22		16			32	x	6	(A) 34 (B) 31 (C) 28 (D) 20
36			30														
14	26	24															
22		16															
	32	x	6														
43 \$2.40 will buy 3kg of flour. Forty cents will buy	(A) $\frac{1}{2}$ kg (B) $\frac{1}{3}$ kg (C) 800g (D) none of these																
44 Find the width of a rectangle with perimeter 180cm and length 70cm.	(A) 70cm (B) 30cm (C) 20cm (D) 50cm																
45 The diagram shows 12 matches forming 5 squares. What is the least number of matches which must be removed so that only 2 squares remain? 	(A) 1 (B) 2 (C) 5 (D) 4																

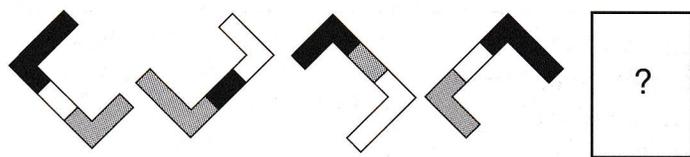
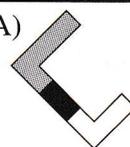
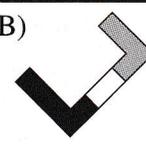
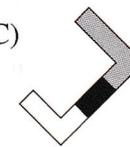
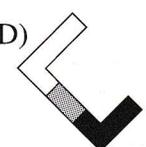
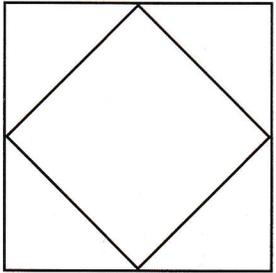
Selective Schools Paper 12

1	$0.05 + \frac{1}{2} =$	(A) 0.1 (B) 0.55 (C) 1.00 (D) 5.5
2	Which given number is closest to 4.18?	(A) 4.2 (B) 4.19 (C) 4.21 (D) 4.165
3	Which number is halfway between 74.81 and 84.37?	(A) 159.18 (B) 9.56 (C) 79 (D) 79.59
4	$5^3 + 5^2$ simplifies to	(A) 390 625 (B) 25 (C) 150 (D) 3 125
5	Which of the given numbers is the smallest?	(A) 23% (B) $\frac{1}{4}$ (C) 0.24 (D) $\frac{2}{5}$
6	Four of us had to stand in line for tickets. There were three girls Ally, Babs, and Candy, and one boy Don. The three girls wanted to stand in line so that they were always together. In how many ways could the four of us stand in line as stated	(A) 6 (B) 12 (C) 16 (D) 8
7	What number must be placed in the boxes to make the number sentence true? $2 \times (3 + \square) = 13 + \square$	(A) 8 (B) 7 (C) 10 (D) there can be no answer
8	The tens digit and the hundreds digit in the number 4 917 are interchanged. Compared to the original number, the new number is	(A) smaller by 5 500 (B) larger by 5 500 (C) smaller by 720 (D) larger by 720
9	The boy who came in first in the race took 2min. 47seconds. The second boy took 3min. 12seconds. The first beat the second by	(A) 25seconds (B) 1min. 5seconds (C) 5seconds (D) 35seconds
10	Each week, $\frac{2}{3}$ of my salary is spent on rent. That leaves me with \$140. How much do I spend on rent?	(A) \$196 (B) \$210 (C) \$56 (D) \$350
11	Twice the difference between $3\frac{1}{4}$ and $1\frac{1}{2}$ is	(A) 3 (B) $2\frac{1}{2}$ (C) $3\frac{1}{2}$ (D) 2

12	5 litres of fuel will take you 35km. How many litres would it take to go 42km?	(A) 7.2 (C) 5.5	(B) 6 (D) 6.5
13	Which of the given quantities of cheese represents the best buy?	(A) 250g for \$1.28 (C) 1.2kg for \$6.00	(B) 600g for \$3.12 (D) 2.5kg for \$13.25
14	A rectangular paddock is half as wide as it is long. It is completely enclosed by 3km of wire. Its area in square kilometres must be	(A) 9 (C) $4\frac{1}{2}$	(B) 3 (D) $\frac{1}{2}$
15	How many multiples of 7 are there between 29 and 135?	(A) 14 (C) 16	(B) 15 (D) 13
16	$4\frac{1}{2}$ is divided by 3. The result is multiplied by 2. The answer is	(A) 4 (C) $6\frac{1}{2}$	(B) 3 (D) $\frac{3}{4}$
17	The smallest number that 24 can be multiplied by to give a perfect square is	(A) 24 (C) 6	(B) 12 (D) 18
18	I save \$2.25 each week. How much will I have saved in 52 weeks?	(A) \$117 (C) \$127	(B) \$114.75 (D) \$123.25
19	Lee bought 8 T-shirts for \$2.32 each and sold them for \$5.18 each. How much money did she make?	(A) \$41.44 (C) \$22.88	(B) \$39.12 (D) \$32.54
20	Each week I save half my pocket money and I buy stamps for my collection with $\frac{1}{5}$ of the pocket money. That leaves \$3.21. How much do I spend on stamps?	(A) \$2.14 (C) \$8.03	(B) \$16.05 (D) \$32.10
21	I pay tax at an average rate of 30%. How much do I have left after paying tax on my yearly salary of \$40 000?	(A) \$1 200 (C) \$12 000	(B) \$3 200 (D) \$28 000
22	When we won the competition, the team received \$623 which was to be shared equally between the seven players. How much did each player receive?	(A) \$89 (C) \$99	(B) \$91 (D) \$79
23	The most likely next number in the sequence $1, \frac{3}{2}, \frac{9}{4}, \frac{27}{8}, \square$ is	(A) $\frac{36}{10}$ (C) $\frac{36}{16}$	(B) 3 (D) $\frac{81}{16}$

<p>24 All the angles are right angles. What is the area of the figure?</p>  <p>Units are in cm.</p>	<p>(A) 64 cm^2 (B) 68 cm^2 (C) 84 cm^2 (D) not enough information to tell</p>
<p>25</p>  <p>All the angles in the diagram are right angles. Measurements are in cm. The perimeter of the figure is</p>	<p>(A) 30 cm (B) 48 cm (C) 36 cm (D) not enough information to tell</p>
<p>Questions 26 - 28 refer to the data in Question 26</p>	
<p>26</p>  <p>Kurt surveyed the people in his class to see what computer they owned. Everyone owned exactly one computer and the results of the survey are shown on the pie chart. What fraction of students owned an IBM?</p>	<p>(A) $\frac{3}{8}$ (B) $\frac{5}{8}$ (C) $\frac{1}{2}$ (D) $\frac{3}{4}$</p>
<p>27 What percentage of the class owns either IBMs or Macs?</p>	<p>(A) $37\frac{1}{2}\%$ (B) 75% (C) 50% (D) 80%</p>
<p>28 If 4 people own Dells, how many people are there in the class?</p>	<p>(A) 45 (B) 32 (C) 24 (D) 28</p>
<p>29 The number $1\boxed{7}1$ is a multiple of 7. The digit in the box must be</p>	<p>(A) 0 or 9 (B) 1 or 7 (C) 0 or 7 (D) 1 or 9</p>

<p>30 A journey takes 3 hours if you travel at 48km/h. How long would it take if you travelled at 36km/h?</p>	<p>(A) 4h (B) 2.5h (C) 2h 15min. (D) 4½h</p>												
<p>31 I spent one quarter of my money on sweets and one half of my money buying a pair of goldfish. If I started with \$10, what would I have left?</p>	<p>(A) \$3.50 (B) \$4 (C) \$2.50 (D) \$7.50</p>												
<p>32</p> <table border="1"> <tbody> <tr> <td>2</td> <td>7</td> <td>4</td> <td>3</td> <td>6</td> <td>9</td> </tr> <tr> <td>5</td> <td>50</td> <td>17</td> <td>10</td> <td>37</td> <td></td> </tr> </tbody> </table> <p>The most likely number which should be placed in the box to complete the pattern would be</p>	2	7	4	3	6	9	5	50	17	10	37		<p>(A) 94 (B) 82 (C) 78 (D) 80</p>
2	7	4	3	6	9								
5	50	17	10	37									
<p>33 Find the average of the numbers 4.03, 4.1, 4.94, 4.73</p>	<p>(A) 4.5 (B) 4.35 (C) 4.55 (D) 4.45</p>												
<p>34 Evaluate 33×33, giving the answer rounded off to the nearest hundred.</p>	<p>(A) 1 010 (B) 1 000 (C) 1 100 (D) 1 110</p>												
<p>35 One of the following statements must be false. Which is it?</p>	<p>(A) Some prime numbers are odd. (B) Some quadrilaterals have three obtuse angles. (C) The average of a set of numbers is larger than the smallest number and smaller than the largest number. (D) In any triangle, two of the sides added together must be less than the third side.</p>												
<p>36 Which number should be used to complete the pattern?</p> 	<p>(A) 14 (B) 20 (C) 18 (D) 22</p>												

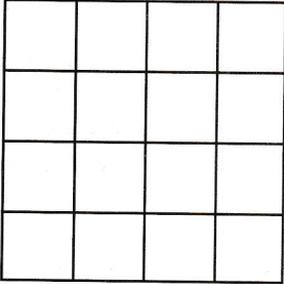
<p>37 Which of the diagrams (A) (B) (C) or (D) would best fit in the space provided in order to complete the pattern?</p> 	<p>(A)  (B) </p> <p>(C)  (D) </p>
<p>38 The sketch shows a large square. The midpoints of the sides of the large square are joined to form a smaller square. Which of the given statements is true?</p> 	<p>(A) The large square is four times as large as the small square. (B) The large square is twice as large as the small square. (C) The large square is three times as large as the small square. (D) None of these is true.</p>
<p>39 The sum of all the counting numbers from 1 to 50 inclusive, is approximately</p>	<p>(A) 2 500 (B) 1 500 (C) 1 200 (D) 1 000</p>
<p>40 Two whole numbers multiply to give 144. Their sum is 26. The larger of the numbers must exceed the smaller by</p>	<p>(A) 12 (B) 10 (C) 8 (D) 9</p>
<p>41 A girl leaves home and sails 5 nautical miles due south, then west for 3 nautical miles, then north for 2 nautical miles, then east for 10 nautical miles, then south for 9 nautical miles, then west for 7 nautical miles. To reach home she must sail</p>	<p>(A) north for 12 nautical miles. (B) east for 8 nautical miles. (C) north for 16 nautical miles. (D) west for 3 nautical miles.</p>
<p>42 The time at Perth is 2 hours behind the time in Sydney. If it is 11:54 p.m. Monday in Perth, then the time in Sydney would be</p>	<p>(A) 1:54 a.m. Tuesday (B) 9:54 p.m. Monday (C) 1:54 p.m. Tuesday (D) 9:54 a.m. Monday</p>
<p>43 It costs \$70 to paint a strip 10cm wide down the centre of a road. To save money it is decided to make the strip 7cm wide. The saving in dollars would be</p>	<p>(A) 12 (B) 21 (C) 49 (D) 19</p>

44 A 2m wide path is built around a 20m square swimming pool. The distance around the outside of the path will be	(A) 96m (B) 48m (C) 92m (D) 56m
45 Coloured beads are arranged on a wire in a repeating pattern of red, black, white, blue, white, black, red, black, white, blue,... and so on. The colour of the 55th bead will be	(A) red (B) black (C) white (D) blue

Scholarship Paper 13

1	There are certain numbers that give no remainder when divided by 3, but when divided by 2 or 5 give a remainder of 1. How many such numbers are there which are less than 100?	(A) 1 (C) 3	(B) 2 (D) 4
2	Uncle Bill is 6 times as old as John and he will be 4 times as old as John in 4 years' time. If Uncle Bill is less than 60 years of age, how old will he be in 6 years' time?	(A) 62 (C) 48	(B) 54 (D) 42
3	A group of seven students buy Christmas presents for each other. How many presents must they buy altogether?	(A) 13 (C) 42	(B) 14 (D) 49
4	Julie was given a mathematics test which contained 25 questions. She answered all 25 questions. She scored 4 marks for each correct answer but she lost one mark for each incorrect answer. If her final mark was 65, how many questions did she get right?	(A) 20 (C) 18	(B) 24 (D) 15
5	I think of a number, multiply it by 6, divide the result by 3, then subtract 5 from that answer. I am left with 75. What was the number I first thought of?	(A) 10 (C) 30	(B) 20 (D) 40
6	How many different ways can the letters W, X, Y and Z be arranged so that the X is the third or fourth letter?	(A) 6 (C) 12	(B) 9 (D) 15
7	Two proof readers are checking the same material. One finds 70 mistakes and the other 94 mistakes. If 39 of the mistakes were found by both readers, how many mistakes were found?	(A) 164 (C) 133	(B) 109 (D) 125
8	George and Ben both decided to swim 10km up a river without leaving the water. Ben swam at an average of 2km per hour. George swam 2km every hour then floated on his back for 10 minutes, but each time he floated the current dragged him back 1km. What was the time difference when they both completed the swim?	(A) 5h 20min. (B) 6h (C) 6h 10 min. (D) 5h 30min.	
9	In a concert theatre there is the same number of seats in each row and the rows are straight. My seat is fourteenth from the front and twelfth from the back. It has 7 seats to its left and 9 seats to its right. How many seats are in the theatre?	(A) 400 (C) 416	(B) 442 (D) 425

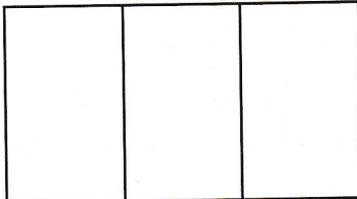
10	Four students can sit at each side of a square table. If 30 of these tables are pushed together end-to-end to make one long straight table, how many students can be seated at it?	(A) 120 (C) 248	(B) 360 (D) 240
11	A tiler charged \$120 to tile a rectangular floor. At the same rate, how much would he charge to tile a rectangular floor which is three times as wide and twice as long as the original floor?	(A) \$720 (C) \$240	(B) \$360 (D) \$180
12	A bus averages 40km/h for 20km and 60km/h for another 20km. The average speed in km/h for the 40km is:	(A) 40 (C) 54	(B) 48 (D) 60
13	The sum of 3 odd numbers is 13. The largest value of their product would be:	(A) 63 (C) 75	(B) 81 (D) 147
14	A fraction which lies between 0 and 1 has both a numerator and denominator. If 5 is added to both the numerator and the denominator, the original fraction has been	(A) unchanged (C) increased by 5	(B) decreased by 5 (D) made closer to 1
15	What percentages of whole numbers from 5 to 24 both inclusive, are exact multiples of 5?	(A) 20% (C) 30%	(B) 25% (D) 35%
16	Two runners are running around an oval. They start together and one takes 300 seconds to complete exactly one lap while the other takes 1050 seconds. How many laps would the faster runner make before they meet again at the starting point?	(A) 14 (C) 35	(B) 5 (D) 7
17	There were 9 people at a party. If each person shook hands exactly once with each of the others, how many handshakes were exchanged?	(A) 36 (C) 24	(B) 28 (D) 72
18	In making one revolution a bicycle wheel travels 100cm. How fast are the wheels spinning, in revolutions per minute, when the bicycle is going at 30km/h?	(A) 100 (C) 500	(B) 250 (D) 750
19	A rectangular garden plot 7 metres by 8 metres is to have a concrete path 50 centimetres wide around it. What is the area of the concrete path in square metres?	(A) 7.75 (C) 14	(B) 56 (D) 16

<p>20 On a farm there are only pigs, goats, sheep and cows. Twenty animals are pigs, one tenth are goats, one fifth are sheep and half are cows. How many animals are there on the farm altogether?</p>	<p>(A) 80 (B) 36 (C) 100 (D) 120</p>
<p>21 How many squares are there in the following diagram?</p> 	<p>(A) 16 (B) 24 (C) 28 (D) 30</p>
<p>22 How many diagonals can be drawn from any vertex of a figure (on a flat surface) which has 50 sides?</p>	<p>(A) 50 (B) 47 (C) 40 (D) 29</p>
<p>23 What is the starting number? $\square \div 5 \times 4 + 6 - 2.5 = 19.9$</p>	<p>(A) 11.5 (B) 16.05 (C) 20.5 (D) 25.5</p>
<p>24 Four girls were asked to think of a two digit number. Each girl wrote the last digit of her number. Who could have thought of a prime number?</p> <p>(i) Fiona wrote 7 (ii) Liz wrote 5 (iii) Joy wrote 2 (iv) Anne wrote 9</p>	<p>(A) Fiona, Liz (B) Liz, Joy (C) Only Anne (D) Fiona, Anne</p>
<p>25 Three pies and two drinks cost \$8.80; two pies and three drinks cost \$7.20. What would you pay for a pie and a drink?</p>	<p>(A) \$2.40 (B) \$3.20 (C) \$3.60 (D) \$1.80</p>

Scholarship Paper 14

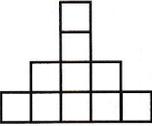
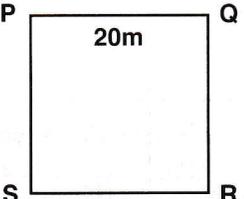
<p>1 A "strange multiplication" table is shown below:</p> <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 2px 5px;">x</td> <td style="padding: 2px 5px;">0</td> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">3</td> </tr> <tr> <td style="padding: 2px 5px;">0</td> </tr> <tr> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">0</td> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">3</td> </tr> <tr> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">0</td> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">0</td> <td style="padding: 2px 5px;">2</td> </tr> <tr> <td style="padding: 2px 5px;">3</td> <td style="padding: 2px 5px;">0</td> <td style="padding: 2px 5px;">3</td> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">1</td> </tr> </table> <p>Using it gives $2 \times 3 = 2$, $3 \times 3 = 1$ and so on. Which of the given statements is false?</p>	x	0	1	2	3	0	0	0	0	0	1	0	1	2	3	2	0	2	0	2	3	0	3	2	1	<p>(A) $(2 \times 3) \times 3 = 2$ (B) $2 \times 3 = 2 \times 1$ (C) $2 \times 2 = 1$ (D) $2 \div 3 = 2$</p>
x	0	1	2	3																						
0	0	0	0	0																						
1	0	1	2	3																						
2	0	2	0	2																						
3	0	3	2	1																						
<p>Questions 2 - 3: One hundred and twenty five cubes, each of side 1cm, are placed on a table to form a solid cube.</p>																										
<p>2 The length of the edge of the cube in centimetres is</p>	<p>(A) 5 (B) 25 (C) 125 (D) 1</p>																									
<p>3 The top and the four side faces of this large cube are now painted red. The number of the original 1cm cubes which have just one face painted red is</p>	<p>(A) 36 (B) 57 (C) 24 (D) 54</p>																									
<p>4 A girl throws 6 dice simultaneously, and writes down the total score. The number of different totals that she could get are</p>	<p>(A) 36 (B) 31 (C) 30 (D) none of these</p>																									
<p>Questions 5 and 6 refer to the same set of numbers.</p>																										
<p>5 Two digits are chosen from the digits 1, 2, 3, 4 and 5. Using these two digits a fraction is formed. What is the total number of such fractions which are of different values and are smaller than 1?</p>	<p>(A) 7 (B) 10 (C) 25 (D) 9</p>																									
<p>6 The average of these fractions is</p>	<p>(A) $\frac{2}{3}$ (B) $\frac{3}{4}$ (C) $\frac{1}{2}$ (D) none of these</p>																									
<p>Questions 7 - 9: The area of a square is 100cm^2. If the length of each side is decreased by 20%, then the</p>																										
<p>7 area of the new square in cm^2 is</p>	<p>(A) 144 (B) 120 (C) 64 (D) 80</p>																									
<p>8 area of the original square has been decreased by</p>	<p>(A) 20% (B) 36% (C) 64% (D) 80%</p>																									

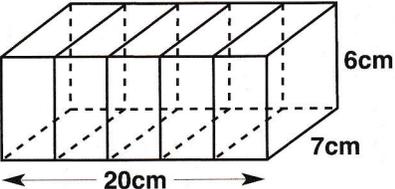
9	perimeter of the new square as a fraction of the original perimeter is	(A) $\frac{4}{5}$	(B) $\frac{5}{4}$
		(C) $\frac{1}{5}$	(D) $\frac{5}{1}$
10	Which of the given numbers has the greatest number of factors?	(A) 16	(B) 36
		(C) 72	(D) 128
Questions 11-12 refer to the same set of numbers.			
11	The number of counting numbers from 1 to 200 inclusive, which contain the digit 1 at least twice is	(A) 20	(B) 19
		(C) 21	(D) 18
12	The number of counting numbers from 1 to 200 inclusive, which contain the digit 1 either once or not at all is	(A) 182	(B) 181
		(C) 179	(D) 180
13	A boy buys chocolates at 17c each and some sweets at 5c each. If he spends exactly \$1, then the numbers of each that he buys are respectively	(A) 4 and 5	(B) 3 and 5
		(C) 6 and 2	(D) 5 and 3
14	On the Reamur temperature scale, water freezes at 0° and boils at 80° , instead of 0° and 100° on the Celsius scale. If the temperature is 24° Reamur, then the temperature in degrees Celsius is	(A) 24	(B) 30
		(C) 36	(D) 42
15	When you multiply the ages in years of two teenagers you get 210. The sum of their ages would be	(A) 31	(B) 29
		(C) 37	(D) 41
16	Rocky's Primary volleyball team won 5 out of every 7 games they played last season. They lost 10 games. How many games did they play?	(A) 35	(B) 50
		(C) 70	(D) 350
17	Alan decided to take a trip to the Gold Coast for a package price of \$541.64. The price included airfare and 8 days and 7 nights in a hotel. If the airfare alone was \$160, what was the cost of the hotel accommodation per night?	(A) \$77.38	(B) \$47.71
		(C) \$67.71	(D) \$54.52
18	Jack is the best mathematician in his class. Once he was asked to add all the whole numbers from 1 to 100 inclusive. He had the answer in a couple of minutes. What was Jack's answer?	(A) 200	(B) 10 000
		(C) 5 000	(D) 5 050

<p>19 The school flag is being designed. It is decided that there must be 3 vertical coloured strips on it as shown below.</p>  <p>Strips next to one another must be different colours. There are 4 different colours to choose from. How many different flags are possible?</p>	<p>(A) 48 (B) 18 (C) 24 (D) 36</p>
<p>20 My father invested his money in some stock. For every \$4.50 he invested, he got back \$9.50. If he ended up with a total of \$228, how much did he invest?</p>	<p>(A) \$45.60 (B) \$57 (C) \$108 (D) \$223</p>
<p>21 On their trip to Sydney, the football team drove 170km in 3 hours 15 minutes, stopped for 40 minutes and then drove 240km in 4 hours 20 minutes. What was their average speed for the total time of the trip? Round the answer off to the nearest kilometre per hour.</p>	<p>(A) 50 (B) 65 (C) 55 (D) 45</p>
<p>22 The school photographer had to arrange the students P, Q, R and S in order from tallest to shortest. P is shorter than Q, R is taller than S and S is shorter than P. S ended up being 2 students away from R. How did the photographer arrange the students?</p>	<p>(A) RQPS (B) QRPS (C) QPRS (D) PQSR</p>
<p>23 Mike and Carol like to ride bicycles. Mike can ride 6km in the same time that Carol can ride 4km. They want to ride 18km and finish together. How much of a start must Carol have?</p>	<p>(A) 8km (B) 6km (C) 12km (D) 16km</p>
<p>24 Tom has 5 times as many comic books as Deborah. Deborah has 40% of the number of comic books that George has. If the total number of comics owned by the three friends is 204, how many are owned by Tom?</p>	<p>(A) 120 (B) 180 (C) 165 (D) 175</p>
<p>25 Four blocks have an average weight of 1.5kg. The weight of the heaviest could be:</p>	<p>(A) 6kg (B) 1.5kg (C) 8kg (D) 3kg</p>

Scholarship Paper 15

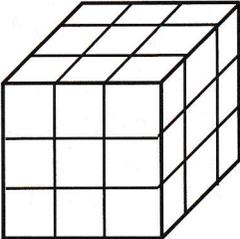
1	How many different numbers can be made using the numerals 2, 5, 8 if no numeral can be repeated in any number?	(A) 6	(B) 9	(C) 12	(D) 15
2	A candle is alight for 10 minutes per day. It burns 3mm of its length during that time. Before the candle was lighted on 1st June, its length was 4.2cm. What date will it be when the candle burns out?	(A) 12th June	(B) 13th June	(C) 14th June	(D) 15th June
3	Henry wanted to divide a certain number by 4 to get an answer. However he used the calculator incorrectly and multiplied by 4 instead. His answer was 60. The correct answer would have been	(A) 3.75	(B) 15	(C) 4	(D) 12
4	A tennis club has a knockout Singles Tournament in which anyone who is defeated in any match is eliminated. The tournament lasts until one player remains. If 14 players entered, how many matches will be needed before the winner is decided?	(A) 13	(B) 12	(C) 14	(D) 11
5	Two numbers are reciprocals of one another if their product is 1; thus $1\frac{2}{3}$, $\frac{3}{5}$ are reciprocals since $\frac{5}{3} \times \frac{3}{5} = 1$. When a certain number is added to its reciprocal, the answer is $4\frac{1}{20}$. The original number must have been	(A) $1\frac{1}{2}$	(B) $\frac{3}{4}$	(C) $1\frac{1}{4}$	(D) $2\frac{1}{2}$
6	The arithmetic mean (average) of a set of 50 numbers is 38. Two numbers of the set, namely 45 and 55, are removed. The arithmetic mean of the remaining set of numbers is	(A) 35.5	(B) 36	(C) 36.5	(D) 37.5
Questions 7 - 8: The letters a and b stand for numbers. Consider the operation * which is such that a * b means "multiply the number one less than a by the number one more than b".					
7	The value of $4 * 6$ is	(A) 18	(B) 21	(C) 25	(D) 35
8	If $3 * k = 10$, the value of k is	(A) $3\frac{1}{2}$	(B) 4	(C) $4\frac{1}{2}$	(D) 5

<p>16 How many three digit numbers can be made using the digits 3, 5, 6 if repetitions are allowed?</p>	<p>(A) 18 (B) 24 (C) 26 (D) 27</p>
<p>17 How many squares and rectangles of any size can be found in the diagram given?</p> 	<p>(A) 29 (B) 30 (C) 31 (D) 34</p>
<p>18 A square PQRS has a side of 20m. Ben walks 3 times around the square in an anti-clockwise direction, then $2\frac{3}{4}$ times around the square in a clockwise direction and finally $6\frac{1}{2}$ times around the square in an anti-clockwise direction. He ended up at S. How far did he walk and where did he start?</p> 	<p>(A) 960m, R (B) 980m, R (C) 980m, Q (D) 940m, P</p>
<p>19 Factorial 6 is written as $6!$ and means $6 \times 5 \times 4 \times 3 \times 2 \times 1 = 720$.</p> <p>$\frac{\text{Factorial } 7}{\text{Factorial } 6}$ is written as $\frac{7!}{6!}$ and means</p> $\frac{7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}{6 \times 5 \times 4 \times 3 \times 2 \times 1} = 7.$ <p>What would be the value of $\frac{9!}{5!4!} - \frac{8!}{4!4!}$?</p>	<p>(A) 196 (B) 126 (C) 70 (D) 56</p>
<p>20 Three children Ann, Betty and Charles play a game in which the winner is awarded a prize. If they play three separate games altogether, in how many ways can the prizes be won?</p>	<p>(A) 3 (B) 7 (C) 10 (D) 9</p>
<p>21 A rectangular prism is made up of 42 cubes of side 1cm. If the perimeter of the base is 18cm, then the height of the prism in centimetres is</p>	<p>(A) 6 (B) 2 (C) 7 (D) 3</p>

<p>22 A tank contains a certain amount of water. Each month half of the water in the tank evaporates and an extra litre of water is added. After 5 months, after the litre of water is added, there were 4 litres of water in the tank. How many litres were in the tank originally?</p>	<p>(A) 50 (B) 42 (C) 74 (D) 66</p>
<p>23</p>  <p>A block of cheese in the shape of a rectangular prism with dimensions 20cm x 7cm x 6cm is cut into 5 smaller blocks by 4 cuts parallel to the ends of the block. By how many cm^2 will the surface area of the original block be increased by these cuts?</p>	<p>(A) 168 (B) 210 (C) 420 (D) 336</p>
<p>24 A jug holds 1.44L of water. This water is poured into an empty rectangular tank measuring 18cm x 10cm x 15cm. What will be the depth then of the water in the tank?</p>	<p>(A) 12cm (B) 8cm (C) 6cm (D) 4cm</p>
<p>25 Sally found the smallest number which could be divided by each of the numbers from 1 to 10 inclusive. When she divided it by 11, she found that she had a remainder of</p>	<p>(A) 1 (B) 3 (C) 8 (D) 9</p>

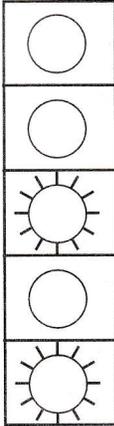
Scholarship Paper 16

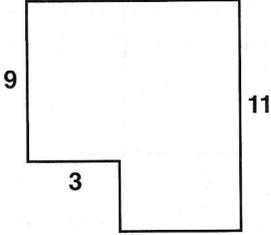
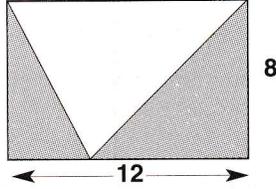
1	How many odd numbers less than 60 are exactly divisible by 3?	(A) 9 (B) 10 (C) 18 (D) 27
2	A rectangle has length 24cm and breadth 6cm. The length of the side of a square with the same area as this rectangle is	(A) 16cm (B) 12cm (C) 9cm (D) 18cm
3	Four swimmers P, Q, R and S all start a race together. R can swim faster than S. P can swim faster than Q. S can swim faster than Q. R can swim faster than P. Which swimmer should win the race?	(A) P (B) Q (C) R (D) S
4	Car X travels for $\frac{1}{2}$ an hour at a certain speed, whilst car Y travels for 1 hour at half the speed of car X. Car X travels	(A) four times as far as car Y. (B) twice as far as car Y. (C) half as far as car Y. (D) the same distance as car Y.
5	Five square pieces of cardboard each have side 1 cm. A pattern is formed using the five pieces by placing each piece flat on a table so that each piece <u>must touch</u> at least one other piece of cardboard. The pattern with the largest perimeter has perimeter	(A) 12cm (B) 10cm (C) 20cm (D) 24cm
6	A girl has twice as many 20c coins as she has 5c coins. If she changed all the 5c coins for 10c coins, she would then have	(A) two thirds as many coins as before. (B) five sixths as many coins as before. (C) three quarters as many coins as before. (D) four fifths as many coins as before.
7	If t and u represent numbers, then the statement $t - u = u - t$ is true	(A) only if $t = u$ (B) only if $t = 0$ or $u = 0$ (C) for all possible values of t or u (D) for no values of t or u
8	A jar full of jam weighs 541g. Half full of jam, it weighs 315g. The empty jar must weigh	(A) 232g (B) 116g (C) 89g (D) 95g
9	A woman sees the hands of a clock in the mirror, but she cannot see the numbers on the clock face. If the time appears to be 6:45, the time shown on the clock face is	(A) 5:15 (B) 3:25 (C) 6:15 (D) 6:45

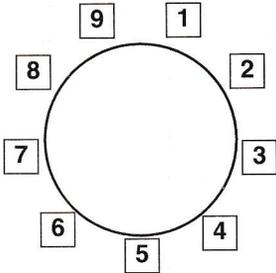
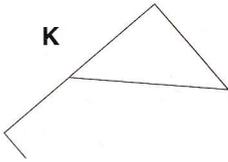
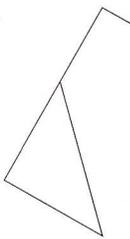
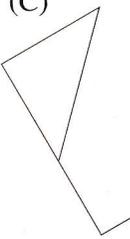
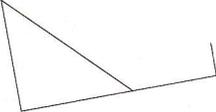
Questions 10 - 11: A farmer fences a rectangular area 150m long and 120m wide. The fence posts are spaced 10m apart with a post at each corner.	
10 How many posts are there along one of the longer sides of the fence?	(A) 14 (B) 15 (C) 16 (D) 17
11 How many posts are there altogether in the fence?	(A) 27 (B) 54 (C) 108 (D) 60
12 A boy has 5 blue socks, 4 red socks, 7 yellow socks and 1 odd green sock all mixed up in a drawer. If he cannot see the socks, what is the greatest number of socks he should take out of the drawer to be certain of getting a pair the same colour?	(A) 18 (B) 4 (C) 2 (D) 5
13 A bathtub will empty at a uniform rate in 15 minutes. With the plug in, it will fill at a uniform rate in 12 minutes. How long in minutes will it take to fill, if the plug is removed and the tap turned on?	(A) 30 (B) 60 (C) 80 (D) 90
14 If n stands for a whole number, which of the given numbers <u>must</u> be odd?	(A) $3 \times n$ (B) $2 \times n + 1$ (C) n^2 (D) $n \times n \times n$
15 One bell rings every 10 minutes, another rings every 12 minutes. If the bells have just rung together, the time, in minutes, until they next ring together is	(A) 22 (B) 30 (C) 60 (D) 72
16 Which of the given possibilities is the best approximation for $\frac{12.3 \times 4.8 + 16.4}{5.9 \times 3.6}$	(A) 3 (B) 4 (C) 5 (D) 8
17 Given a two digit number, a new three digit number is made from it by putting the digit 5 after it. The new number is then equal to	(A) the old number plus 5. (B) ten times the old number plus 5. (C) 100 plus the old number. (D) 100 times the old number plus 5.
Questions 18 -23 refer to the diagram below.	
A 9cm cube is painted blue.	

18	The minimum number of cuts needed to cut it into 3cm cubes is	(A) 9 (B) 27 (C) 6 (D) none of these
19	The number of 3cm cubes which are painted blue on 3 sides is	(A) 9 (B) 8 (C) 3 (D) none of these
20	The number of 3cm cubes which are painted blue on 1 side is	(A) 4 (B) 6 (C) 8 (D) 10
21	The number of 3cm cubes which are painted blue on no sides is	(A) 2 (B) 1 (C) 3 (D) 9
22	The number of 3cm cubes which are painted blue on 2 sides as a fraction of the number of 3cm cubes is	(A) $\frac{3}{5}$ (B) $\frac{1}{6}$ (C) $\frac{1}{2}$ (D) $\frac{2}{27}$
23	The number of cubes of sides 3cm or 6cm or 9cm is	(A) 3 (B) 36 (C) 27 (D) 64
24	Arthur is as much taller than Betty as Betty is taller than Charles. Arthur is 1.28m tall. Betty is 1.12m tall. Charles's height is	(A) 1.06m (B) 0.96m (C) 0.16m (D) 1.44m
25	Jim lives in town A and his friend Suzie lives in town B 240 km away. One Saturday he decides to visit her and drives from A to B at an average speed of 80 km/h. He finds Suzie away and returns immediately to A at an average speed of 60 km/h. What is his average speed for the whole trip?	(A) 70 km/h (B) $34\frac{2}{3}$ km/h (C) $68\frac{1}{2}$ km/h (D) 72 km/h

Scholarship Paper 17

<p>1 Twenty students in a class play football and the remaining ten play tennis. How many must change from tennis to football so that the percentage of the class which plays football is approximately 83%?</p>	<p>(A) 6 (B) 8 (C) 4 (D) 5</p>
<p>2 When you square a certain number, the answer ends in a 6. The original number must end in</p>	<p>(A) 2 or 3 (B) 4 or 6 (C) 3 or 4 (D) not enough information</p>
<p>3 Tom, Dick and Harry receive a certain sum of money each. Dick gets half of what Tom gets and Harry gets 50% more than Dick. If Dick gets \$30, then the amount that they receive altogether is</p>	<p>(A) \$135 (B) \$75 (C) \$105 (D) \$100</p>
<p>4 Which of the given fractions lies between $\frac{1}{4}$ and $\frac{1}{3}$?</p>	<p>(A) $\frac{1}{25}$ (B) $\frac{1}{20}$ (C) $\frac{1}{15}$ (D) $\frac{1}{3}$</p>
<p>5 A naval lighthouse consists of 5 lights, one above the other, one or more of which must be on. How many different signals can be shown by the lighthouse? (One of these possible signals is shown in the diagram).</p> <div style="text-align: center;">  </div>	<p>(A) 32 (B) 10 (C) 25 (D) 31</p>
<p>6 A merchant increased the price of a \$50 skirt by 10%, but found that he couldn't sell it at that price. So he reduced it from that price by 10%. The skirt was then priced at</p>	<p>(A) \$45 (B) \$50 (C) \$49.50 (D) \$55</p>
<p>7 The volume of a cube is 1m^3. The volume of a second cube is 8m^3. The side of the second cube is</p>	<p>(A) twice as large as the side of the first. (B) eight times as large as the side of the first. (C) four times as large as the side of the first. (D) three times as large as the side of the first.</p>

<p>8 In the sketch below all angles are right angles and all measurements are in centimetres. The area of the figure in cm^2 is</p> 	<p>(A) 78 (B) 69 (C) 71 (D) not enough information to tell</p>
<p>9 In the rectangle below, the measurements are in metres. The shaded area, in m^2 is</p> 	<p>(A) 60 (B) 96 (C) 48 (D) 72</p>
<p>10 $3 \times 2\frac{1}{2}$ is the same as $\frac{1}{4}$ of what number?</p>	<p>(A) 24 (B) 22 (C) 30 (D) 26</p>
<p>11 How many minutes between 11:47 a.m. and 12:36 p.m.?</p>	<p>(A) 49 (B) 83 (C) 43 (D) 57</p>
<p>12 I spent one third of my pocket money, but then my friend gave me \$2. I then had \$6. My pocket money was</p>	<p>(A) \$6 (B) \$12 (C) \$10 (D) \$9</p>
<p>13 This year I paid $\frac{2}{5}$ of my salary in tax. That left me with \$17 640. How much was my salary before tax?</p>	<p>(A) \$10 584 (B) \$7 056 (C) \$44 100 (D) \$29 400</p>
<p>14 A man sees a criminal escaping in a car. He sees only part of the number plate of the car: $\square X A \square 37$</p> <p>He tells the police that he couldn't see the first letter or the first number of the number plate, but that he is certain that the other letters and numbers are correct. How many cars would the police have to check in order to find the criminal?</p>	<p>(A) 1 000 (B) 260 (C) 510 (D) 26 000</p>
<p>15 The sum of two numbers is 42 and their difference is 8. The product of the numbers is</p>	<p>(A) 336 (B) 425 (C) 524 (D) 496</p>

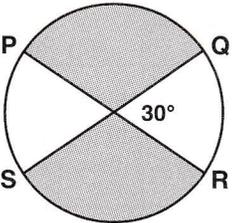
<p>16 I am thinking of a number. Half the sum of that number and 11 is the same as 3 more than the number. What is the number?</p>	<p>(A) 4 (B) 5 (C) 8 (D) 13</p>
<p>17 Which two numbers on a number line are twice as far from 2 as they are from 5?</p>	<p>(A) 3 and 6 (B) 4 and 8 (C) 4 and 10 (D) 3 and 5</p>
<p>18 A game is played by 10 people. Nine chairs are arranged in a circle and nine people sit on them.</p>  <p>The tenth person starts counting at chair number 1 and counts in a clockwise direction. He taps every fourth seated person on the shoulder and that person must then stand up. The last of the nine persons still seated wins the game. In what position would you sit in order to win the game?</p>	<p>(A) 1 (B) 3 (C) 4 (D) none of these</p>
<p>19 When the two digit number KY is multiplied by itself, the result is the 3 digit number ZLK i.e. $(KY) \times (KY) = ZLK$. The number that K stands for is</p>	<p>(A) 1 or 9 (B) 2 or 6 (C) 3 (D) 1</p>
<p>20 Which of the given shapes could <u>not</u> have been obtained by rotating the shape marked K?</p> 	<p>(A)  (B) </p> <p>(C)  (D) </p>
<p>21 What is $\frac{1}{3}$ of $\frac{1}{3}$ divided by $\frac{1}{3}$?</p>	<p>(A) $\frac{1}{3}$ (B) $\frac{1}{27}$ (C) $\frac{1}{9}$ (D) $\frac{1}{2}$</p>

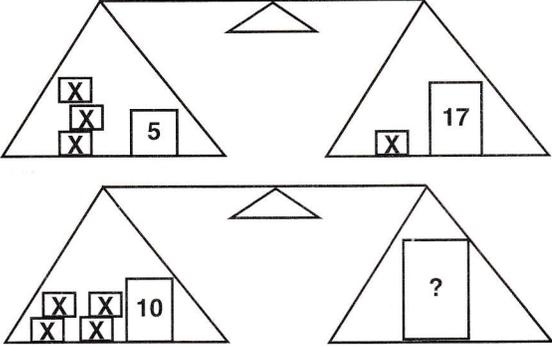
22	A dog weighs 24kg plus one half of its weight. The dog must weigh	(A) 36kg	(B) 48kg	(C) 32kg	(D) 64kg
23	A store advertises a 15% discount sale. I saved \$12 on a can of paint. The original price of the can must have been	(A) \$80	(B) \$180	(C) \$85	(D) \$88
24	When thirteen thousand, thirteen hundred and thirteen is written in digits, then the fourth digit from the right will be	(A) 3	(B) 1	(C) 0	(D) 4
25	The 5 digit number $987\square5$ is multiplied by 9 and the answer is increased by 3. If the result is 888 888, then the \square must stand for	(A) 3	(B) 4	(C) 5	(D) 6

Scholarship Paper 18

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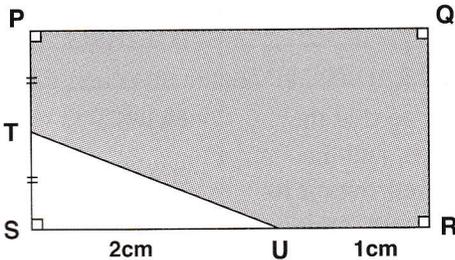
<p>1 How many different pairs of parallel edges are there in a cube?</p>	<p>(A) 12 (B) 18 (C) 8 (D) 16</p>
<p>2 If \square stands for a number greater than 4, which of the following is the greatest number?</p>	<p>(A) $\frac{2 \times \square - 1}{5}$ (B) $\frac{2 \times \square}{5}$ (C) $\frac{5}{2 \times \square - 1}$ (D) $\frac{5}{2 \times \square - 2}$</p>
<p>3 Exactly 35% of a group of persons said that they agreed with the proposal. What is the smallest number of persons who could have been asked?</p>	<p>(A) 350 (B) 35 (C) 20 (D) 100</p>
<p>4 "The square of a number is less than the number". This statement is true for</p>	<p>(A) all numbers greater than or equal to 1. (B) all numbers between 0 and 1. (C) all numbers greater than zero. (D) none of these.</p>
<p>5 The sum of three consecutive odd numbers is</p>	<p>(A) odd. (B) divisible by 3. (C) odd and divisible by 3. (D) none of these.</p>
<p>6 If a and b are counting numbers and i) $a + b$ is odd and ii) $a \times b$ is odd then</p>	<p>(A) a and b are both odd (B) a and b are both even (C) one of the numbers is odd and the other even (D) statements i) and ii) cannot both be true</p>
<p>7 P, Q and R are whole numbers greater than 1. Which of the following COULD be a prime number?</p>	<p>(A) $R + R$ (B) $3 \times P \times Q$ (C) $P \times Q + Q$ (D) $P + 1$</p>
<p>8 One side of a rectangle is increased by 10%. The other side is increased by 20%. The area of the rectangle will increase by</p>	<p>(A) 15% (B) 200% (C) 30% (D) 32%</p>

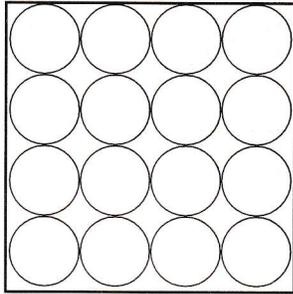
9	Six children buy presents for each other. How many presents must they buy in total?	(A) 6 (B) 30 (C) 18 (D) 24
10	In the diagram below, PR and QS are diameters.	(A) $\frac{5}{6}$ (B) $\frac{3}{4}$ (C) $\frac{2}{3}$ (D) $\frac{3}{5}$
 <p>What fraction of the circle is shaded?</p>		
11	A bottle and a cork cost together 13 cents. If the bottle costs 12 cents more than the cork, how much does the bottle cost?	(A) 11 cents (B) 12 cents (C) 10 cents (D) none of these
12	The average age of ten people at a party is 14 years. When two people leave, the average age rises to 15. If both people were the same age, that age in years must be	(A) 20 (B) 15 (C) 10 (D) 12
13	I can drive 720km from Sydney to Queensland in 9 hours. If I left an hour later than usual, how much greater must my average speed be if I must arrive at the same time?	(A) 20km/h (B) 10km/h (C) 15km/h (D) 40km/h
14	An 8 litre can filled with cooking oil weighs 42kg. When 5 litres are emptied from the can, the can and the oil weigh 27kg. What is the weight of the empty can?	(A) 10kg (B) 18kg (C) 12kg (D) 20kg
15	If 24 men can construct a kit home in 18 days, how many days would it take 27 men, working at the same rate?	(A) 16 (B) 15 (C) 12 (D) 10
16	If one square has twice the perimeter of another, how much larger is its area?	(A) twice as large (B) four times as large (C) eight times as large (D) none of these
17	A boy spent two fifths of his money and found that two fifths of the remainder was \$1.20. How much did he have at first?	(A) \$4.80 (B) \$7.50 (C) \$5.00 (D) \$6.50

18 A bottle is half full of water. When another 450mL of water is added, the bottle is $\frac{2}{3}$ full. What is the maximum amount of water that the bottle will hold?	(A) 2 litres (B) 2 400mL (C) 3 litres (D) 2 700mL
19 At my favourite restaurant, I can choose from four entrees, five main courses and three desserts. How many different three course meals are possible?	(A) 12 (B) 16 (C) 60 (D) 45
<p>20 The diagrams below show two balances.</p>  <p>In the two diagrams the boxes marked with an "X" weigh the same. The other boxes are marked with their weight in kilograms. The weight in kilograms of the unknown box (with the ? in it) must be</p>	(A) 26 (B) 34 (C) 30 (D) 36
21 How far in metres will a car travelling at 54km/h go in 12 seconds?	(A) 180 (B) 240 (C) 672 (D) 512
22 In a barnyard, there are only sheep and hens. Altogether there are 37 animals and between them there are 134 legs. How many hens are there?	(A) 15 (B) 20 (C) 12 (D) 7
23 Starting at the same time, two boys walk towards each other keeping in step. If the first boy's step is 70cm long and the second boy's step is 80cm, and they meet after taking 224 steps each, how far apart did they start?	(A) 224m (B) 360m (C) 448m (D) 336m
24 The price of a pen is increased by 20% to \$5.82. What was the original price?	(A) \$1.16 (B) \$4.68 (C) \$4.85 (D) \$4.66
25 A number is increased by 25% and the result is decreased by 25%. If the final number is 15, the original number was	(A) 15 (B) 12 (C) 20 (D) 16

Scholarship Paper 19

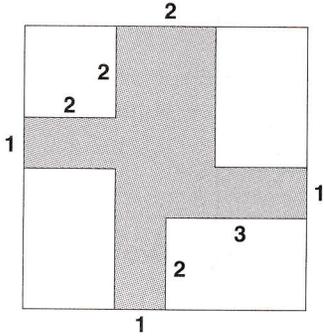
1	If \square is an unknown number and $6 \times \square + 4 = 12$, then $8 \times \square + 5 =$	(A) 15 (C) $13\frac{2}{3}$	(B) 16 (D) $15\frac{2}{3}$
2	The 3 in 231 is how many times larger than the 3 in 491.3?	(A) 10 (C) 100	(B) 1 000 (D) 10 000
3	It takes me $\frac{1}{3}$ of an hour driving at 66km/h to cover a certain distance. How fast, in km/h would I have to travel to cover twice this distance in $\frac{1}{2}$ hour?	(A) 99 (C) 396	(B) 44 (D) 88
4	The next number in the series 341, 213, 149, 117, 101 is probably	(A) 83 (C) 99	(B) 95 (D) 93
5	Everybody in a class plays either football or cricket. Two-fifths of the class plays football. Of those that play football, half also play cricket. If 12 students play cricket, the number of people in the class is	(A) 30 (C) 15	(B) 60 (D) 20
6	A sheet of paper is 0.30mm thick. The sheet is folded once, then again and so on. How thick would the folded paper be after 7 folds?	(A) 3.84cm (C) 19.2mm	(B) 2.1mm (D) 2.1cm
7	Each card in a deck of playing cards measures 4.5cm by 8.5cm. The total surface area - including the front and back of each card, in a pack of 52 cards is	(A) $3\,978\text{cm}^2$ (B) $1\,989\text{cm}^2$ (C) 38.25cm^2 (D) 76.5cm^2	
8	My bathroom scales show that I weigh 10% more than I actually do. What would my weight be if they show me weighing 92.4kg?	(A) 83.16kg (C) 102.4kg	(B) 82.4kg (D) 84kg
9	Six men can plough a field in 5 days. How many days should it take 4 men working at the same rate?	(A) $3\frac{1}{2}$ (C) $2\frac{1}{2}$	(B) 8 (D) $7\frac{1}{2}$
10	The surface area of a cube is 216m^2 . What is its volume in cubic metres?	(A) 216 (C) 108	(B) 36 (D) 1 024
11	\$18 is divided between three children so that the first gets $\frac{1}{2}$ of it, the second gets $\frac{1}{3}$ of it, and the third gets $\frac{1}{6}$ of it. If any of the \$18 is left over it is to be given to the child who receives least. That child will receive	(A) \$2 (C) \$3.50	(B) \$3 (D) \$4

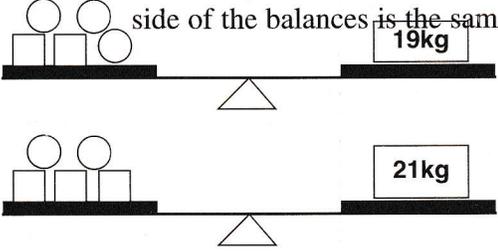
12	Code words of 1 letter, 2 letters and 3 letters are to be made using the letters A, B, C. How many code words can be made if no letter can be used twice in any code word?	(A) 27 (C) 12	(B) 9 (D) 15
13	Alan has 14 coins in his pockets. They are 5c, 10c and 20c coins. The total value of the coins is \$1.75. He has twice as many 10c coins as 5c coins. How many 20c coins are there?	(A) 8 (C) 5	(B) 2 (D) 11
14	I think of a number and square it. From the answer I subtract the original number. The result could NOT be	(A) 30 (C) 132	(B) 42 (D) 18
15	How many different fractions more than 1 can be formed using the digits 2,3,4,5,6 once only? (Each fraction may use only 2 digits).	(A) 11 (B) 10 (C) 9 (D) 8	
16	The sum of three consecutive odd numbers could NOT be	(A) 345 (C) 237	(B) 255 (D) 383
17	A centimetre of rain falls on a hectare of land. What would this rain weigh in tonnes?	(A) 10 (C) 10 000	(B) 100 (D) 1 000
18	The length of a rectangle is $1\frac{1}{2}$ times its breadth. If its area is 96cm^2 , its perimeter in centimetres must be	(A) 40 (C) 48	(B) 24 (D) 36
19	The symbol $4!$ means $4 \times 3 \times 2 \times 1$. Using this symbol, the value of $\frac{5! + 6!}{4!}$ would be	(A) 1 663 200 (B) 150 (C) 35 (D) 725	
20	T is the midpoint of the side PS of the rectangle PQRS. PS = 2cm and U is on SR so that SU = 2cm, UR = 1cm.  What fraction of the rectangle is the shaded area?	(A) $\frac{2}{3}$ (C) $\frac{5}{6}$	(B) $\frac{3}{4}$ (D) $\frac{7}{6}$

21 'Every even number can be written as the sum of two prime numbers', e.g. $10 = 3 + 7 = 5 + 5$. Noting 1 is not considered to be a prime number, in how many ways can the number 50 be written as the sum of two prime numbers?	(A) 4 (B) 5 (C) 6 (D) 7
22 For all numbers represented by the letters a, b the operation * means $a*b = a^2 - a \div b$. The value of $6*12$ is	(A) 11.5 (B) 35.5 (C) 36.5 (D) 2.5
23 How many days are there <i>between</i> 24 February 2000 and 11 May 2000?	(A) 76 (B) 75 (C) 78 (D) 77
24 How many square centimetres are there in the surface area of a solid cube of side 1 metre?	(A) 600 (B) 6 000 (C) 60 000 (D) 600 000
25 The sketch shows a square tray of area 400cm^2 , in which 16 equal sized coins are placed. What is the radius of each coin? 	(A) 5cm (B) 4cm (C) 2cm (D) 2.5cm

Scholarship Paper 20

1	25% of 40% is equivalent to	(A) 15% (B) 75% (C) 65% (D) 10%
2	Find the difference between the largest of the following fractions and the smallest. $\frac{6}{25}, \frac{3}{10}, \frac{1}{4}, \frac{1}{5}$	(A) $\frac{1}{100}$ (B) $\frac{3}{50}$ (C) $\frac{1}{20}$ (D) $\frac{1}{10}$
3	The next number in the series 11, 15, 24, 40, 65 is probably	(A) 91 (B) 104 (C) 94 (D) 101
4	Max estimates that there are 20 to 40 golf balls in a box. When he counts the balls by fives there is one ball left over. When he counts them by threes there are two left over. What is the exact number of golf balls in the box?	(A) 26 (B) 21 (C) 24 (D) 36
5	A cube of side 6cm has a square hole of side 4cm cut through it. The remaining volume in cubic centimetres is	(A) 96 (B) 64 (C) 120 (D) 152
6	A ladder 12m long rests against a wall. If the foot of the ladder is 6m away from the wall, then the ladder reaches a certain distance up the wall. The best approximation to this distance is	(A) 6m (B) 12m (C) 10m (D) 13m
7	Barry has \$7 more than Saul, and Saul has \$19 less than Alla. If they have \$32 altogether, Saul must have	(A) \$24 (B) \$5 (C) \$2 (D) \$11
8	A man has twin sons of equal height. The combined height of the man and one son is 180cm. The combined height of the man and both sons is 252cm. Twice the man's height added to the height of one son would be	(A) 288cm (B) 216cm (C) 324cm (D) 296cm
9	An old way of measuring temperature was the "Fahrenheit" scale. To change a measurement in Fahrenheit degrees into Celsius, you multiplied the number of Fahrenheit degrees by 5, subtracted 160 from your answer, and divided that answer by 9. What would 40°Celsius be in Fahrenheit degrees?	(A) 4% (B) 779% (C) 104 (D) 86
10	The first digit of a four digit number is 4 and the last digit is 7. If the first and last digits are swapped, then relative to the old number, the new number would be	(A) larger by 2 997 (B) smaller by 2 997 (C) larger by 3 003 (D) not enough information to tell

<p>11 The shaded figure below was cut from a square piece of metal with a side of 6m. All measurements are in metres and all the angles are right angles. The figure is not drawn to scale. The area in square metres of the figure would be:</p> 	<p>(A) 14 (B) 16 (C) 28 (D) not enough information to tell</p>
<p>12 In a class there are 64 students. Ten do not play any sport, 33 play cricket, and 28 play tennis. The number of students who play both cricket and tennis is</p>	<p>(A) 7 (B) 3 (C) 5 (D) none of these</p>
<p>13 The denominator of a fraction is greater than the numerator. If the numerator and denominator of the fraction are both increased by the same amount, then the new fraction</p>	<p>(A) is equal to the old fraction. (B) exceeds the old fraction. (C) is smaller than the old fraction. (D) is greater than or equal to the old fraction depending on the size of the number which was added to the numerator and denominator.</p>
<p>14 In class P, there are 20 students and in class Q there are 28 students. Both classes sit for the same test. The average of the students in class P was 60% and the average of the students in class Q was 70%. It was then decided to put all the marks together and find the common average. This average to the</p>	<p>(A) 64% (B) 65% (C) 66% (D) 55%</p>

<p>nearest % would be</p> <p>15 Two weighings are done on a balance. The boxes on the left hand side of the balances all weigh the same and the weight of each ball on the left hand side of the balances is the same.</p>  <p>The weight of three boxes and four balls in kilograms would be</p>	<p>(A) 20 (B) 25</p> <p>(C) 26 (D) 27</p>
<p>16 There are 4 boys P, Q, R, S. If P is taller than R, and Q is taller than S, and P is shorter than Q and R is shorter than S, then if we arrange the boys in order of height from smallest to largest, only one of the following is true.</p>	<p>(A) R is shorter than S who is shorter than P who is shorter than Q.</p> <p>(B) R is shorter than S who is shorter than Q who is shorter than P.</p> <p>(C) R is shorter than P who is shorter than Q who is shorter than S.</p> <p>(D) there is not enough information to tell.</p>
<p>17 Water flows into a 48 litre tank at a rate of 3 litres every 15 seconds. At the same time, water flows out of the tank through a tap at a rate of 3 litres each 10 seconds. If the tank was half full to start with, after how many minutes will it be empty?</p>	<p>(A) 8 (B) 12</p> <p>(C) 2 (D) 4</p>

Questions 18 - 25 apply to the following tables.

In a strange arithmetic, addition and multiplication are worked out using the following tables:

+	0	1	2	3	4
0	0	1	2	3	4
1	1	2	3	4	0
2	2	3	4	0	1
3	3	4	0	1	2
4	4	0	1	2	3

X	0	1	2	3	4
0	0	0	0	0	0
1	0	1	2	3	4
2	0	2	4	1	3
3	0	3	1	4	2
4	0	4	3	2	1

18	Use the tables to find the value of $3 + 2 + 3 \times 2$.	(A) 0 (C) 2	(B) 1 (D) 3
19	Use the tables to find the value of $3^2 + 2 \times (2 + 4 \times 3)$.	(A) 4 (C) 0	(B) 37 (D) 2
20	Use the multiplication table to find the value of the cube of 2 i.e. $2 \times 2 \times 2$.	(A) 4 (C) 2	(B) 3 (D) 1
21	Use the multiplication table to find the value of the square root of 4.	(A) 2 only (C) 3 only	(B) 2 or 3 (D) 1
22	Using the addition table, find the value of $2 - 3$.	(A) 1 (C) 3	(B) 2 (D) 4
23	Use the multiplication table to find the value $2 \div 3$.	(A) 1 (C) 3	(B) 2 (D) 4
24	If K stands for a number, and $4 + K = 0$, use the addition table to find what number K must stand for.	(A) 4 (C) 3	(B) 1 (D) 2
25	If P stands for a number, and $3 \times P + 2 = 4$, use the tables to find what number P must stand for.	(A) 1 (C) 3	(B) 2 (D) 4