

Mathematics Tests for Selective and Independent Schools and for Scholarship Examinations

- * 20 practice papers
- * all multiple choice questions
- * based on previous papers
- * answers to all questions
- * outline of solutions to nearly all questions
- * ideal for entrance into New South Wales and Victorian Selective Schools
- * ideal for entrance to Independent Schools throughout Australia
- * ideal for Scholarship and Bursary Examinations

by James An, Jim Coroneos and John Smith

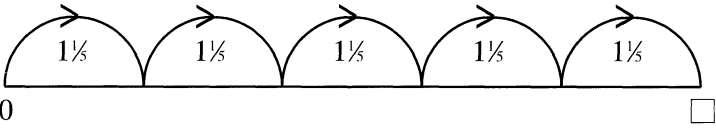
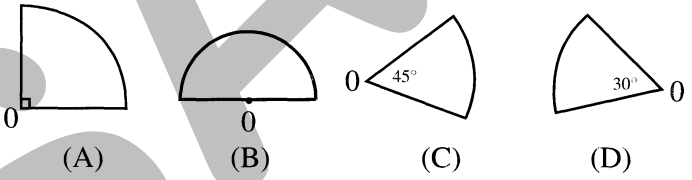
Item 49 - New Revised Edition

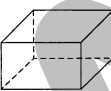



CONTENTS AND SCORE

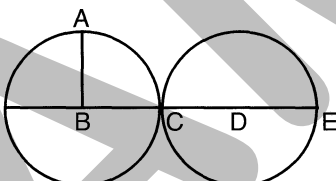
Selective/Independent Schools Tests	Page	Your Score
Paper 1.....	1	%
Paper 2.....	6	%
Paper 3.....	12	%
Paper 4.....	18	%
Paper 5.....	23	%
Paper 6.....	28	%
Paper 7.....	33	%
Paper 8.....	38	%
Paper 9.....	43	%
Paper 10.....	48	%
Paper 11.....	54	%
Paper 12.....	59	%
Scholarship tests		
Paper 13.....	65	%
Paper 14.....	68	%
Paper 15.....	71	%
Paper 16.....	75	%
Paper 17.....	78	%
Paper 18.....	82	%
Paper 19.....	85	%
Paper 20.....	88	%
Answers and Solutions	92 to 138	

Selective Schools Paper 1

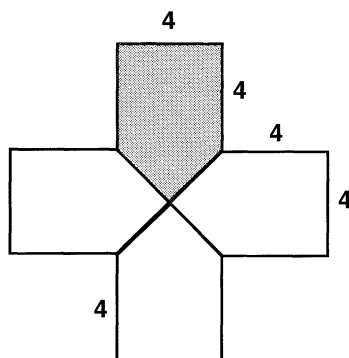
1	The average of six numbers is 4. A seventh number is added to the first six. The average of the seven numbers is 5. The seventh number is	(A) $4\frac{1}{2}$ (C) 2	(B) 7 (D) 11
2	How many years are there in 2 centuries and 2 millenia?	(A) 220 (C) 2 200	(B) 202 (D) 2 020
3	How many times can $2\frac{1}{2}$ be subtracted from $12\frac{1}{2}$?	(A) 5 (C) 7	(B) 6 (D) 4
4	$1.21 - 0.9 =$	(A) 1.12 (C) 0.31	(B) 0.12 (D) 1.31
5	What is the lowest common multiple of 3,4 and 6?	(A) 6 (C) 4	(B) 12 (D) 24
6	Which of the given numbers has the largest value?	(A) 1.2 (C) $1\frac{1}{4}$	(B) 1.24 (D) 1.19
7	Simplify $1\frac{1}{2} + 2\frac{3}{5}$	(A) $3\frac{3}{10}$ (C) $3\frac{1}{2}$	(B) $3\frac{3}{5}$ (D) $3\frac{3}{10}$
8	When \$299.99 is rounded to the nearest dollar it becomes:	(A) \$299.00 (C) \$299.90	(B) \$290.00 (D) \$300.00
9	John saw frost on the grass in the morning. What was the likely temperature?	(A) -10°C (C) 15°C	(B) 1°C (D) 30°C
10	If 120 is three tenths of a number, the number is:	(A) 240 (C) 400	(B) 120 (D) 150
11	How many whole hundreds are there in 2 967 890?	(A) 2 967 (C) 29 670	(B) 29 678 (D) 8
12	What is the average of 3.1, 8.1, 5.1, 7.1, 3.1 and 4.1?	(A) 7.1 (C) 5.6	(B) 6.1 (D) 5.1

<p>13 A rectangular fish tank is 50cm long, 40cm wide and 30cm deep. How many litres of water will it hold?</p>	<p>(A) 60 (B) 6 (C) 30 (D) 3</p>
<p>14 The place value of 7 in 219.07 is</p>	<p>(A) Hundreds (B) Hundredths (C) Units (D) Tenths</p>
<p>15 What number is represented by the \square?</p> 	<p>(A) 5 (B) 6 (C) $5\frac{1}{5}$ (D) None of these</p>
<p>16 A man wishes to join the police force. He weighs 100kg and must lose 200g each week in order to be accepted. What would he weigh 50 weeks from now?</p>	<p>(A) 80kg (B) 85kg (C) 90kg (D) 95kg</p>
<p>17 24kg of flour cost \$28.80. How much can be purchased for \$3.60?</p>	<p>(A) 1kg (B) $1\frac{1}{2}$kg (C) 2kg (D) 3kg</p>
<p>18 Eight million eight hundred and eight is equal to</p>	<p>(A) 8 800 008 (B) 8 080 080 (C) 8 000 808 (D) 8 008 008</p>
<p>19 Which is equal to half a quadrant of a circle? (O is the centre of the circle and sketches are not to scale.)</p> 	<p>(A) (B) (C) (D)</p>
<p>20 In the expression $27 + 36 \div 4 \times 7$, which is calculated first?</p>	<p>(A) $27 + 36$ (B) $36 \div 4$ (C) 4×7 (D) 36×7</p>
<p>21 Two painters were contracted to paint a building for \$2 265. The cost of the paint was \$465. If they took 6 days to do the work, how much per day did they each make?</p>	<p>(A) \$300 (B) \$250 (C) \$200 (D) \$150</p>

<p>22 What is the most probable missing number in the pattern: 3, 7, □, 15, 19?</p>	<p>(A) 9 (B) 10 (C) 11 (D) 13</p>
<p>23 Add the product of 28 and 3 to the sum of 29 and 11. The answer is:</p>	<p>(A) 124 (B) 104 (C) 1 204 (D) 907</p>
<p>24 26 marks out of 50 expressed as a percentage is:</p>	<p>(A) 26% (B) 52% (C) 50% (D) 51%</p>
<p>25 The number 21.87 is the same as:</p>	<p>(A) $2 + 1 + 8 + 7$ (B) $20 + 1 + 8 + \frac{7}{10}$ (C) $20 + 1 + \frac{8}{10} + \frac{7}{100}$ (D) $2 + 1 + \frac{8}{10} + \frac{7}{100}$</p>
<p>26 Which set is arranged in descending order?</p>	<p>(A) {3.99, 4.01, 4.10, 4.11} (B) {4.11, 4.01, 4.10, 3.99} (C) {4.11, 4.10, 4.01, 3.99} (D) {4.11, 4.10, 3.99, 4.01}</p>
<p>27 Of the angles 70°, 130°, 60°, 20°, 90°, 180°, 150°, which represents the acute angles?</p>	<p>(A) 70°, 60°, 90° (B) 20°, 60°, 70° (C) 70°, 130°, 180° (D) 130°, 180°, 150°</p>
<p>28 There are four shapes. Which shape does not belong to this group?</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>(A)</p> </div> <div style="text-align: center;">  <p>(B)</p> </div> <div style="text-align: center;">  <p>(C)</p> </div> <div style="text-align: center;">  <p>(D)</p> </div> </div>	<p>(A) (B) (C) (D)</p>
<p>29 Which is true?</p>	<p>(A) $4\ 716 \div 1\ 000 = 47.160$ (B) $4\ 716 \times 1\ 000 = 471\ 600$ (C) $4\ 716 + 1\ 000 = 5\ 716$ (D) $4\ 716 - 1\ 000 = 4\ 616$</p>
<p>30 A bus travelled from Melbourne to Sydney in 12 hours 59 minutes. If it left Melbourne at 11:35 a.m. on Monday, when did it arrive in Sydney?</p>	<p>(A) 1:24 a.m. Monday (B) 1:24 a.m. Tuesday (C) 12:34 a.m. Tuesday (D) 12:34 a.m. Monday</p>
<p>31 At a school of 100 pupils, 30 are boys. What percentage of the pupils enrolled are girls?</p>	<p>(A) 50% (B) 60% (C) 70% (D) 30%</p>

<p>32 If the two end digits of 4186 were interchanged, the number would be made:</p>	<p>(A) smaller by 1 990 (B) larger by 1 998 (C) smaller by 1 998 (D) larger by 1 990</p>
<p>33 A 125mL carton of milk costs 20 cents. How much per litre would that be?</p>	<p>(A) \$1.60 (B) \$2.00 (C) \$2.20 (D) \$2.40</p>
<p>34 A parallelogram is a quadrilateral with pair(s) of opposite sides parallel. What is the missing number?</p>	<p>(A) 1 (B) 2 (C) 3 (D) 4</p>
<p>35 Instead of subtracting a number from 784, Michelle added and got a total of 1 093. What was the correct answer?</p>	<p>(A) 299 (B) 475 (C) 784 (D) 1 093</p>
<p>36 \$6 432.25 + \$2.71 + \$91.24 + \$241.76 + \$7.99. The answer is:</p>	<p>(A) \$6 577.95 (B) \$6 757.59 (C) \$6 775.95 (D) \$6 775.59</p>
<p>37 Which fraction will fill the gap in the series $\frac{1}{5}, \frac{39}{50}, \frac{19}{25}, \frac{74}{100}, \square, \frac{1}{10}$?</p>	<p>(A) $\frac{18}{25}$ (B) $\frac{3}{5}$ (C) $\frac{79}{100}$ (D) $\frac{17}{24}$</p>
<p>38 These are two identical circles. Points B and D are the centres of the circles. If AB is 4cm, then BE is:</p> 	<p>(A) 4cm (B) 12cm (C) 8cm (D) 6cm</p>

Questions 39 and 40 refer to this symmetrical diagram - units are in centimetres.



<p>39 What is the perimeter of the above shape?</p>	<p>(A) 40cm (B) 44cm (C) 48cm (D) 52cm</p>
<p>40 What is area of the shaded region?</p>	<p>(A) 16cm² (B) 20cm² (C) 24cm² (D) 32cm²</p>
<p>41 9 litres of water are to be poured into a tub using a jug which holds $\frac{1}{4}$ litre of water. How many jugfuls are necessary to pour the water completely into the tub?</p>	<p>(A) $2\frac{1}{4}$ (B) 24 (C) 36 (D) 48</p>
<p>42 If \$5 in Australian money equals \$16 in Hong Kong money, how much Hong Kong money should I get if I change \$64 Australian for Hong Kong money?</p>	<p>(A) \$20 (B) \$90 (C) \$320 (D) \$204.80</p>
<p>43 What is the sum of the number of edges and vertices on a rectangular prism?</p>	<p>(A) 6 (B) 12 (C) 16 (D) 20</p>
<p>44 Write the third largest number you can using 4, 9, 6, 8, 0, 2.</p>	<p>(A) 986 240 (B) 986 204 (C) 986 420 (D) 986 402</p>
<p>45 An agent sells a block of land for \$120 000. She receives 5 cents in the dollar commission on the first \$40 000 and 2 cents in the dollar on the remainder. In total she receives</p>	<p>(A) \$2 000 (B) \$1 600 (C) \$3 600 (D) \$8 400</p>

PAPER 1

- 1 (D) Sum of the 6 numbers is $6 \times 4 = 24$; sum of the 7 numbers is $7 \times 5 = 35$. Seventh number is $(35 - 24) = 11$.
- 2 (C) A millenium (plural millenia) is 1 000 years.
- 3 (A) Note $5 \times 2\frac{1}{2} = 12\frac{1}{2}$
- 4 (C) Note $0.9 = 0.90$
- 5 (B) Multiples of 3 are 3, 6, 9, 12, 15, ...; multiples of 4 are 4, 8, 12, 16, ...; multiples of 6 are 6, 12, 18, ...; Lowest common multiple (underlined) is 12.
- 6 (C) Note $1\frac{1}{4} = 1.25$
- 7 (D) $\frac{1}{2} = \frac{5}{10}$; $1\frac{5}{10} + 2\frac{5}{10} = 3 + \frac{5+4}{10} = 3\frac{9}{10}$
- 8 (D) \$299.99 is between \$299.00 and \$300.00 and nearer to \$300.00
- 9 (A) Note freezing point of water is 0°C
- 10 (C) **Method 1** By trial, find one tenth of each possible answer and multiply it by 3, to see if you obtain 120.
- Method 2** If $\frac{3}{10}$ of the number is 120
 then $\frac{1}{10}$ of the number is $120 \div 3 = 40$
 thus $\frac{10}{10}$ of the number i.e. the number itself is $40 \times 10 = 400$.
- 11 (B) Easy to see answer if you 'make it simpler', thus in 890 there are 8 hundreds and in 7 890 there are 78 hundreds and so on.
- 12 (D) average = $\frac{3.1 + 8.1 + 5.1 + 7.1 + 3.1 + 4.1}{6} = \frac{30.6}{6} = 5.1$
- 13 (A) $V = L \times B \times H = 50 \times 40 \times 30 = 60\,000\text{cm}^3$
 But $1\text{cm}^3 = 1\text{mL}$,
 thus $60\,000\text{cm}^3 = 60\,000\text{mL} = 60\text{L}$.
- 14 (B) In 219.07, the place value of the 2 is 2 hundreds, 1 is 1 ten, 9 is 9 units, 0 is 0 tenths, 7 is 7 hundredths.
- 15 (B) Note $5 \times 1\frac{1}{5} = 5 \times 1 + 5 \times \frac{1}{5} = 5 + 1 = 6$.
- 16 (C) Each week he loses 200g; thus after 50 weeks he will have lost
 $50 \times 200 = 10\,000\text{g} = 10\text{kg}$.
- 17 (D) If 24kg cost \$28.80
 then 1kg costs $\$28.80 \div 24 = \1.20
 thus \$3.60 will buy you 3kg flour
- 18 (C) Easiest done by addition
- $$\begin{array}{r} 8\,000\,000 \\ 800 \\ \hline 8+ \end{array}$$
- 19 (C) There are 360° in a circle. One quadrant (fourth) is equal to 90° ; half a quadrant contains 45° .
- 20 (B) Multiplication and division are always done before addition or subtraction. When we have \times and \div we work from left to right, i.e. in $36 \div 4 \times 7$ we first calculate $36 \div 4$ (and then multiply by 7).
- 21 (D) Daily rate per painter = $(\$2\,265 - \$465) \div 12$.
- 22 (C) The difference in the numbers is always 4.
- 23 (A) Answer is $(28 \times 3) + (29 + 11) = 84 + 40 = 124$.
- 24 (B) $\frac{2}{100} = \frac{52}{100} = 52\%$
- 25 (C) $21.87 = 20 + 1 + \frac{87}{100}$