

Mathematics Stage 4 Diagnostic Tasks Answers with Common Errors

Answers	Common Errors
Computation with Integers	
<p>Question 1</p> <p>a) An integer is a positive or negative whole number, or zero.</p> <p>b)</p> <div style="text-align: center;"> </div> <p>c) -4, -1, 0, 5, 8, 9</p> <p>d)</p> <p style="padding-left: 20px;">i) $4 > -1$</p> <p style="padding-left: 20px;">ii) $-5 < -2$</p> <p style="padding-left: 20px;">iii) $0 > 3$</p>	<p>Question 1</p> <p>a) Not recognising negative numbers as integers. Just writing positive whole numbers or whole numbers or numbers</p> <p>c) Think -4 is larger than -1 since 4 is bigger than 1</p> <p>d) Not understanding which sign is less than and which is greater than</p> <p>d) ii) think -5 is larger than -2 since 5 is larger than 2</p>
<p>Question 2</p> <p>a) 9</p> <p>b) -1</p> <p>c) -4</p> <p>d) -6</p>	<p>Question 2</p> <p>c) Answer as 4 (confusion of multiplication and division rule, that two negatives always make a positive)</p>
<p>Question 3</p> <p>a) -18</p> <p>b) 12</p> <p>c) -5</p> <p>d) 2</p> <p>e) -3</p>	<p>Question 3</p> <p>Mix up rules of positive and negative multiplication and division</p>
<p>Question 4</p> <p>a) $24 - 30 = -6$</p> <p>b) $9 - 10 = -1$</p> <p>c) $-18 + 33 = 15$</p> <p>d) $-10 + 9 = -1$</p> <p>e) $8 + 10 \div 2 = 8 + 5 = 13$</p>	<p>Question 4</p> <p>Don't follow order of operation. Example</p> <p>a) Do $24 - 5$ first getting 19×6</p> <p>e) $8 + 10 \div 2 = 18 \div 2$</p>
<p>Question 5</p> <p>a) -16</p> <p>b) 180</p> <p>c) 68</p>	
<p>Question 6</p> <p>a) $15 - (-8) = 23$</p> <p>b) $15 - (-5) = 20$</p> <p>c)</p> <p style="padding-left: 20px;">i) It means she owes \$50</p> <p style="padding-left: 20px;">ii) $-50 + 200 = \\$150$</p>	<p>Question 6</p> <p>a) $15^{\circ}\text{C} - 8^{\circ}\text{C} = 7^{\circ}\text{C}$</p> <p>b) $15\text{m} - 5\text{m} = 10\text{m}$</p> <p>c) ii) Add \$200 to \$50</p>

Fractions, Decimals and Percentages	Common Errors
<p>Question 1</p> <p>a)</p> <p>i) $2\frac{1}{3}$</p> <p>ii) $2\frac{3}{10}$</p> <p>b)</p> <p>i) $\frac{10}{3}$</p> <p>ii) $\frac{11}{4}$</p>	
<p>Question 2</p> <p>a)</p> <p>i) 21</p> <p>ii) 12</p> <p>b)</p> <p>i) $\frac{3}{4}$</p> <p>ii) $\frac{2}{5}$</p>	<p>Question 2</p> <p>a) Look at the difference between the numbers as addition not a multiplying factor. e.g. 2 plus 4 gives 6, so therefore we need to add 4 to 7 and get $\frac{6}{11}$.</p> <p>b) ii) Just cross off all the zeros to get $\frac{4}{1}$.</p>
<p>Question 3</p> <p>a)</p> <p>i) $\frac{11}{12}$</p> <p>ii) $\frac{1}{2}$</p> <p>iii) $1\frac{7}{10}$</p> <p>iv) $\frac{8}{55}$</p> <p>v) $8\frac{2}{3}$</p> <p>vi) $\frac{3}{2}$</p> <p>vii) $16\frac{2}{3}$</p> <p>viii) $\frac{7}{2}$</p> <p>b)</p> <p>i) 81.22</p> <p>ii) 29.12</p> <p>iii) 435.2</p> <p>iv) 0.077879</p> <p>v) 10.35</p> <p>vi) 6</p> <p>vii) 2.3</p>	<p>Question 3</p> <p>a) i) - iii) Straight add/sub numerators and denominators. iv) cross multiply v) Multiply the whole numbers, then the fractions to get $6\frac{2}{12}$ vi) - vii). Divide the numerators, then the denominators.</p> <p>b) i) and ii). Not lining up decimal points correctly iii) Adding a zero on the end to get 43.520 v) Answer with only one decimal place, as the numbers in the question have one decimal place to get 103.5</p>

Fractions, Decimals and Percentages	Common Errors												
<p>Question 4</p> <p>a)</p> <table border="1"> <thead> <tr> <th>Fraction</th> <th>Decimal</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>$\frac{2}{5}$</td> <td>0.4</td> <td>40%</td> </tr> <tr> <td>$\frac{3}{10}$</td> <td>0.3</td> <td>30%</td> </tr> <tr> <td>$\frac{1}{8}$</td> <td>0.125</td> <td>12.5%</td> </tr> </tbody> </table> <p>b) -4.3, 30%, $\frac{1}{3}$, 0.34, $\frac{2}{5}$</p>	Fraction	Decimal	Percentage	$\frac{2}{5}$	0.4	40%	$\frac{3}{10}$	0.3	30%	$\frac{1}{8}$	0.125	12.5%	<p>Question 4</p> <p>a) Writing 12.5% as a decimal as 12.5, as it is already a decimal</p> <p>b) Write in descending order Have 30% as the largest number in the set as 30 is the biggest number in the set.</p>
Fraction	Decimal	Percentage											
$\frac{2}{5}$	0.4	40%											
$\frac{3}{10}$	0.3	30%											
$\frac{1}{8}$	0.125	12.5%											
<p>Question 5</p> <p>a) $\frac{20}{60} = \frac{1}{3}$ or $33\frac{1}{3}\%$</p> <p>b) $\frac{200}{2000} = \frac{1}{10}$ or 10%</p>	<p>Divide the two numbers give without converting to same units i.e. a) 20/1 b) 200/2</p>												
<p>Question 6</p> <p>a)</p> <p>i) 0.344 = 0.3</p> <p>ii) 12.565 = 12.57</p> <p>iii) 365.998 = 366.0</p> <p>b)</p> <p>i) $0.\dot{3}$</p> <p>ii) $34.\overline{3721}$ or $34.3\overline{721}$</p>	<p>Question 6</p> <p>a) ii) Just cutting the decimal off at the second decimal place and not rounding up therefore getting 12.56</p> <p>iii) Either round to the nearest ten correctly or incorrectly to get 370 or 360, or not knowing how to carry the one from the rounding and getting 365.100 or 365.108</p>												
<p>Question 7</p> <p>a)</p> <p>i) $0.\dot{6}$</p> <p>ii) $0.\dot{2}$</p> <p>b)</p> <p>i) $\frac{3}{5}$</p> <p>ii) $\frac{29}{20} = 1\frac{9}{20}$</p>	<p>Question 7</p> <p>a) Writing the numerator and denominator as the decimal places to get for example 0.23 or 2.3</p>												
<p>Question 8</p> <p>a) Art 78%, English 76%, Maths 80%. She achieved the best result in Maths.</p> <p>b)</p> <p>i) 3 games</p> <p>ii) \$3.50 change</p>	<p>Question 8</p> <p>a) Selecting 78% as it's the largest number in the list</p>												

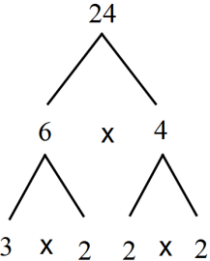
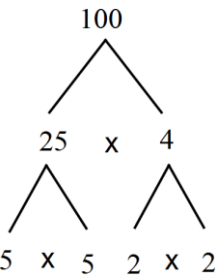
Financial Mathematics	Common Errors
<p>Question 1</p> <p>a) GST stands for Goods and Services Tax</p> <ul style="list-style-type: none"> i) GST inclusive means that the price already has the GST included in the cost ii) GST exclusive means that the price has not had the GST added to it yet iii) Pre-GST means that the price has not had the GST added to it yet iv) The rate of GST is 10% <p>b)</p> <ul style="list-style-type: none"> i) \$12 ii) \$98.10 <p>c)</p> <ul style="list-style-type: none"> i) \$9 ii) \$80 <p>d)</p> <ul style="list-style-type: none"> i) \$227.27 ii) \$313.63 	<p>Question 1</p> <p>Calculating GST or pre-GST price from GST inclusive prices, many will just calculate 10% of the GST inclusive price and take that as the GST and then do the subtraction.</p>
<p>Question 2</p> <p>a)</p> <ul style="list-style-type: none"> i) \$13.50 ii) \$31.50 <p>b) 300g for \$2.50 and 600g for \$5.00 are of equivalent value at 83c/100g 1kg for \$8.00 equates to 80c/100g, so it is the best value.</p>	<p>Question 2</p> <p>a) i) answering that the amount saved was 30% rather than calculating the amount</p> <p>b) Some will just choose the 300g as it is the cheapest or the 1kg as you get more cereal.</p>
<p>Question 3</p> <p>a) Profit = \$70</p> $\frac{70}{150} \times 100 = 47\%$ <p>b) If the toy was sold at 10% below cost, it means that they were sold at 90% of the cost price.</p> $\begin{array}{lcl} 90\% & \rightarrow & \$150 \\ 1\% & \rightarrow & \frac{150}{90} \\ 100\% & \rightarrow & \frac{150}{90} \times 100 = \$166.67 \end{array}$ <p>The cost price was \$166.67, which means that the loss was \$16.67</p>	<p>Question 3</p> <p>a) Work out the percentage by just using the two numbers given i.e. $\frac{150}{220} \times 100\%$ or work out the percentage using the selling price i.e. $\frac{70}{220} \times 100\%$</p> <p>b) Calculate 10% of \$150 (\$15) and subtract it from \$150.</p>

Ratio and Rates	Common Errors
<p>Question 1</p> <p>a)</p> <p>i) 4:7</p> <p>ii) 5:10 = 1:2</p> <p>b)</p> <p>i) 2:3</p> <p>ii) 1:4</p> <p>iii) 3:10</p> <p>c)</p> <p>i) 8 parts</p> <p>ii) 13 parts</p>	<p>Question 1</p> <p>a) ii) Not simplifying just leave as 5:10</p> <p>b) ii) halving both to get $\frac{1}{4} : 1$</p> <p>iii) Just writing the numbers 3:1</p>
<p>Question 2</p> <p>a) 8 parts \rightarrow \$40</p> <p>1 part \rightarrow $\frac{\\$40}{8} = 5$</p> <p>3 parts \rightarrow $5 \times 3 = \\$15$</p> <p>5 parts \rightarrow $5 \times 5 = \\$25$</p> <p>\$15 : \$25</p> <p>b) 7 parts \rightarrow \$21000</p> <p>1 part \rightarrow $\frac{\\$21000}{7} = 3000$</p> <p>3 parts \rightarrow $3000 \times 3 = \\$9000$</p> <p>4 parts \rightarrow $3000 \times 4 = \\$12000$</p> <p>\$9000 : \$12000</p> <p>c) 22 students, 12 girls and 10 boys</p> <p>i) 12:22 = 6:11</p> <p>ii) 12:10 = 6:5</p> <p>d) Length : Width \rightarrow 7 : 4</p> <p>\rightarrow x : 12</p> <p>Increased by a factor of 3</p> <p>x = 21</p>	<p>Question 2</p> <p>a) Divide 40 by 3 and divide 40 by 5</p>
<p>Question 3</p> <p>a)</p> <p>i) 150km/2h = 75km/h</p> <p>ii) 5.6m/6h = $93\frac{1}{3}$ m/h</p> <p>b)</p> <p>i) \$15/h</p> <p>ii) 720m/h</p>	

Ratio and Rates	Common Errors
<p>Question 4 a) 1500 m b) 6m/s</p>	<p>Question 4 a) Just multiply or divide the numbers given</p>
<p>Question 5 i) 2 ii) Time iii) 10 am iv) 90 minutes v) 2 pm</p>	<p>Question 5 i) Thought that every time the graph changes that is a stop iii) Incorrectly thinking that she picked her up at the start of the day i.e. 9am</p>

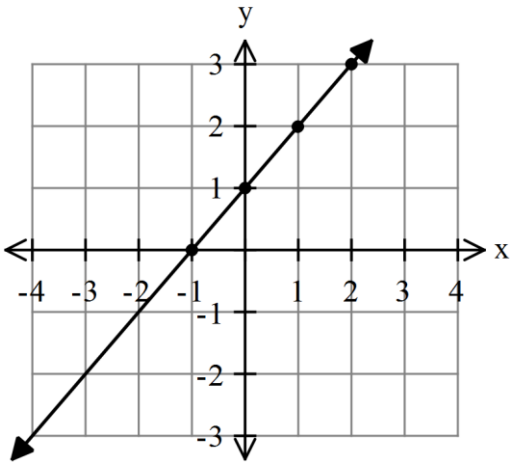
Algebraic Techniques 1	Common Errors
<p>Question 1</p> <p>a) $a + c = 3 + 4$ $= 7$</p> <p>b) $\frac{12}{a} = \frac{12}{3}$ $= 4$</p> <p>c) $5a - b = 5(3) - 2$ $= 13$</p>	<p>Question 1</p> <p>c) Replacing the a in 5a with a 3 to get 53 - 2</p>
<p>Question 2</p> <p>a)</p> <p>i) $6 \times m$ ii) $h \div 4$ iii) $3 \times k + 2$</p> <p>b)</p> <p>i) $5bc$ ii) $12m^2$</p> <p>c)</p> <p>i) $5 + N$ ii) $3w$ iii) $N + 1$</p>	<p>Question 2</p> <p>b) leaving the multiplication sign between the numbers and the pronumerals i.e. 5xbc and 12xmm (not recognising that mm is m^2)</p>
<p>Question 3</p> <p>a) $2x$ b) $-2y^2$ c) $7x^2 - 5x - 3$ d) $9a - 3b$ e) $6b^2$ f) $-30ab$</p>	<p>Question 3</p> <p>c) Not recognising that x^2 and x are not like terms and trying to add them together and coming up with an answer of $2x^3 - 3$</p> <p>d) Not collecting like terms and just adding all the numerical values and getting an answer of 6ab</p>

Algebraic Techniques 2	Common Errors																														
<p>Question 1</p> <p>a)</p> <table border="1"> <tr> <td>x</td> <td>-3</td> <td>-1</td> <td>4</td> <td>5</td> </tr> <tr> <td>x^2</td> <td>9</td> <td>1</td> <td>16</td> <td>25</td> </tr> </table> <p>b)</p> <table border="1"> <tr> <td>y</td> <td>-2</td> <td>0</td> <td>1</td> <td>3</td> </tr> <tr> <td>$\frac{y}{4}$</td> <td>$-\frac{1}{2}$</td> <td>0</td> <td>$\frac{1}{4}$</td> <td>$\frac{3}{4}$</td> </tr> </table> <p>c)</p> <table border="1"> <tr> <td>m</td> <td>-3</td> <td>0</td> <td>2</td> <td>3</td> </tr> <tr> <td>$-m+2$</td> <td>5</td> <td>2</td> <td>0</td> <td>-1</td> </tr> </table>	x	-3	-1	4	5	x^2	9	1	16	25	y	-2	0	1	3	$\frac{y}{4}$	$-\frac{1}{2}$	0	$\frac{1}{4}$	$\frac{3}{4}$	m	-3	0	2	3	$-m+2$	5	2	0	-1	<p>Question 1</p> <p>a) Doing -3^2 on the calculator and getting -9 rather than entering it as $(-3)^2$</p> <p>c) When substituting $m = -3$ into $-m + 2$, just calculating $-3 + 2 = -1$ because the $-m$ already has the negative.</p>
x	-3	-1	4	5																											
x^2	9	1	16	25																											
y	-2	0	1	3																											
$\frac{y}{4}$	$-\frac{1}{2}$	0	$\frac{1}{4}$	$\frac{3}{4}$																											
m	-3	0	2	3																											
$-m+2$	5	2	0	-1																											
<p>Question 2</p> <p>a)</p> <p>i) $2x - 8$ ii) $-6k + 4$ iii) $6 \times a \times b$ iv) $m \times m \times m \times y \times y$</p> <p>b)</p> <p>i) $8(a + 2)$ ii) $-3(t + 4)$ iii) $y(y - 3)$ iv) $2x(y + 4)$</p>	<p>Question 2</p> <p>a) i) forgetting to multiply the 2 and -4 ii) not multiplying the -2 by -2, instead getting $-6k + 4$</p>																														

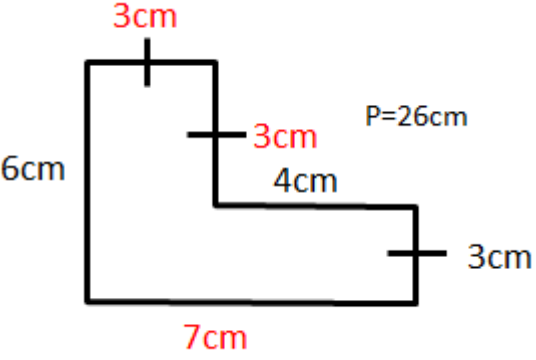
Indices	Common Errors
<p>Question 1</p> <p>a)</p> <p>i) 2^3</p> <p>ii) $3^2 \times 4^3$</p> <p>b)</p> <p>i) $2 \times 2 \times 5 \times 5$</p> <p>ii) $4 \times 4 \times 4$</p>	<p>Question 1</p> <p>Evaluating instead of writing in index notation</p>
<p>Question 2</p> <p>a)</p> <p>3×2^3</p> 	<p>Question 2</p> <p>Not factorising all the way to the prime factors</p>
<p>b) $5^2 \times 2^2$</p> 	
<p>Question 3</p> <p>a) 24</p> <p>b) 40</p>	<p>Question 3</p> <p>Not following rules of order of operation for example a) 9×4</p>
<p>Question 4</p> <p>a) False</p> <p>b) True</p> <p>c) True</p> <p>d) True</p>	
<p>Question 5</p> <p>a) 5</p> <p>b) 10</p> <p>c) 44.7</p> <p>d) 4</p> <p>e) 5</p> <p>f) 3</p>	<p>Question 5</p> <p>Using a $\sqrt{\quad}$ instead of $\sqrt[3]{\quad}$</p>

Indices	Common Errors
<p>Question 6</p> <p>a)</p> <ul style="list-style-type: none"> i) True ii) True iii) False iv) False <p>b) 7 and 8</p>	<p>Question 6</p> <p>b) Answer 59 and 61, as that is what 60 lies between</p>
<p>Question 7</p> <ul style="list-style-type: none"> a) 4^5 b) 5^4 c) 2^6 d) 1 e) 1 	<p>Question 7</p> <ul style="list-style-type: none"> a) multiply the base numbers to get 16^5, multiply the indices to get 4^6 b) divide the base numbers to get 1^4, divide the indices to get 5^3 c) square the base number 2 to get 4^4
<p>Question 8</p> <ul style="list-style-type: none"> a) 262144 b) 29.9 c) 12.6 d) 3.5×10^{13} e) 273.375 f) -1 	

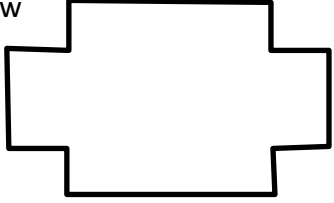
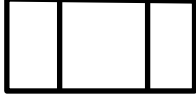

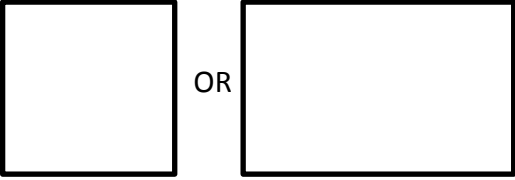
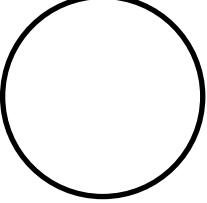
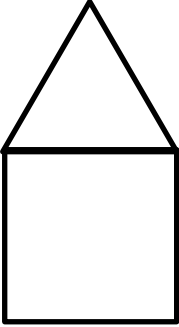
Equations	Common Errors
<p>Question 1</p> <p>a) i) True ii) False iii) True</p> <p>b) i) $3x = 15$ ii) $(2 + y)^2 = 25$</p> <p>c) i) $y = 20$ ii) $p = 6$ iii) $m = -1$ iv) $x = 24$ v) $n = 10$ vi) $x = 2$</p>	<p>Question 1</p> <p>a) replacing the x in the expressions with 4 to get for example $3x=34$</p> <p>b) only squaring the y to get $2 + y^2 = 25$</p> <p>c) Most common error is that the same operation is not performed correctly to both sides of the equation to maintain the balance</p>
<p>Question 2</p> <p>a) $m = 6\frac{1}{2}$</p> <p>b) $x = -3\frac{1}{2}$</p> <p>c) $p = 3\frac{1}{3}$</p> <p>d) $x = \frac{1}{2}$</p> <p>e) $y = 3$</p> <p>f) $k = 2\frac{2}{3}$</p>	<p>Question 2</p> <p>Most common error is that the same operation is not performed correctly to both sides of the equation to maintain the balance</p>
<p>Question 3</p> <p>a) $2x + 3 = 21$ $x = 9$</p> <p>b) Casey = x Father = 3x $x + 3x = 48$ $x = 12$ Casey = 12 Father = 36</p>	<p>Question 3</p> <p>Forming the wrong equation a) multiplying everything by 2 i.e. $2(n + 3)$ or multiplying the 3 by 2 i.e. $n + 3 \times 2$ to get $n + 6$</p>
<p>Question 4</p> <p>a) i) $a = \pm 4$ ii) $y = \pm 8$ iii) $x = \pm\sqrt{3}$ iv) $m = \pm 6$ v) $x = \pm\sqrt{\frac{15}{4}} = \pm\frac{\sqrt{15}}{2}$</p> <p>b)</p> <p>i) Has a solution ($y = \pm 4$) ii) Has a solution ($p = \pm 3$) iii) No solution</p>	<p>Question 4</p> <p>a) Only having the positive answer i.e. no \pm sign</p> <p>b) ii) Seeing the -8, and thinking there is no solution as you can't square root a negative, instead of looking at the question as a whole.</p>

Linear Relationships	Common Errors																
<p>Question 1</p> <p>a) (3, 2) b) (-3, -2) c) (-1, 2) d) (4, -2)</p>	<p>Question 1</p> <p>Mixing up the order of the points and giving the y-ordinate first then the x-ordinate</p>																
<p>Question 2</p> <p>a) 1, -1, -3 b) -4, -2, 0</p>																	
<p>Question 3</p> <table border="1"> <tr> <td>Number of Pentagons (P)</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>10</td> </tr> <tr> <td>Number of Sides (S)</td> <td>5</td> <td>9</td> <td>13</td> <td>17</td> <td>21</td> <td>25</td> <td>41</td> </tr> </table> <p>a) The number of sides S equals <u>four</u> times of the number of pentagons plus <u>one</u>. b) $S = 4P + 1$ c) 401</p>	Number of Pentagons (P)	1	2	3	4	5	6	10	Number of Sides (S)	5	9	13	17	21	25	41	<p>Question 3</p> <p>c) not using the pattern/rule and just doing $100 \div 5$, as there are 5 sides on a pentagon</p>
Number of Pentagons (P)	1	2	3	4	5	6	10										
Number of Sides (S)	5	9	13	17	21	25	41										
<p>Question 4</p> <p>a) Increasing b) Decreasing</p>																	
<p>Question 5</p> <p>a)</p> <table border="1"> <tr> <td>x</td> <td>-1</td> <td>0</td> <td>1</td> <td>2</td> </tr> <tr> <td>y</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> </tr> </table> <p>b)</p> 	x	-1	0	1	2	y	0	1	2	3	<p>Question 5</p> <p>b) Plot the points in the wrong order getting x and y mixed up or not being able to read the table and produce the points.</p>						
x	-1	0	1	2													
y	0	1	2	3													

Linear Relationships	Common Errors										
<p>Question 6</p> <p>a)</p> <table border="1"> <tr> <td>x</td> <td>-1</td> <td>0</td> <td>1</td> <td>2</td> </tr> <tr> <td>y</td> <td>2</td> <td>1</td> <td>0</td> <td>-1</td> </tr> </table> <p>b) $y = -x + 1$</p>	x	-1	0	1	2	y	2	1	0	-1	
x	-1	0	1	2							
y	2	1	0	-1							
<p>Question 7</p> <p>$y = 3x + 3$ and $y = 3x$</p>											
<p>Question 8</p> <p>$x = -1$</p>	<p>Question 8</p> <p>Solve the equation algebraically rather than using the graph or looking at where $x = 1$ on the graph.</p>										
<p>Question 9</p> <p>(1, 2)</p>											

Length	Common Errors
<p>Question 1</p> <p>a) $P=30$units b) $P=23$m c) $P=28$cm d) $P=27.4$cm</p>	<p>Question 1</p> <p>b) and d) just adding the three numbers you see on the diagram and not all the side lengths.</p>
<p>Question 2</p> 	<p>Question 2</p> <p>Just adding the three numbers you see on the diagram and not all the side lengths.</p>
<p>Question 3</p> <p>a) $\pi \approx 3.1416$</p> <p>b)</p> <p>i) $C = 8\pi cm$ ii) $C = 10\pi cm$</p>	<p>Question 3</p> <p>b) Not knowing what exact value referred to, they may just round to nearest whole number. Depending on which formula is used there may be an incorrect use of the radius and diameter in the formula. Also mixing up the circumference and area formulas or using a combination of both.</p>
<p>Question 4</p> <p>a) $L \approx 12.57cm$ $P \approx 20.57cm$ b) $L \approx 28.27cm$ $P \approx 40.27cm$ c) $L \approx 1.57cm$ $P \approx 7.57cm$</p>	<p>Question 4</p> <p>Mixing up the circumference and area formulas or using a combination of both.</p>
<p>Question 5</p> <p>a) width=25cm b) $27.42477796 \approx 28m$ of tiles</p>	<p>Question 5</p> <p>a) Just doing $90cm - 20cm = 70cm$ b) Using 6m as the radius</p>

Area	Common Errors
<p>Question 1 a) $8cm^2$ b) $2500000m^2$</p>	<p>Question 1 Multiply by the conversion factor instead of dividing and vice versa Use the linear conversion factors and divide by 10 and 100 respectively.</p>
<p>Question 2 a) $A = 108mm^2$ b) $A = 30cm^2$ c) $A = 82cm^2$ d) $A = 62.1m^2$ e) $A = 70cm^2$ f) $A = 270cm^2$ g) $A = 112.5cm^2$</p>	<p>Question 2 Calculate perimeter rather than area of the shapes.</p> <p>b), c) and d) forget to apply the half to the formula and just multiply the values. f) and g) not recognise the shapes as a trapezium and a composite shape, and just multiply the numbers. g) Unable to find the height of the triangle in the composite shape so use 16cm as the height</p>
<p>Question 3 a) $A \approx 254.47cm^2$ b) $A = 13.40cm^2$</p>	<p>Question 3 Mixing up the circumference and area formulas or using a combination of both.</p>
<p>Question 4 a) $A = 12.9m^2$ Cost= \$322.50 b) Area land = $720000m^2$ Area triangular block= $360000m^2 = 36ha$</p>	<p>Question 4</p> <p>c) Not recognise that the area of the triangle is half the area of the rectangle. Students may try to work with the area of a triangle</p>

Volume	Common Errors
<p>Question 1</p> <p>a) Top View</p>  <p>b) Side View</p>  <p>c) Front View</p> 	<p>Question 1</p> <p>Draw the view in 3-dimensions rather than 2-dimensions.</p>
<p>Question 2</p> <p>a)</p>  <p>Square OR Rectangle</p> <p>b)</p>  <p>Circle</p> <p>c)</p>  <p>Square + triangle</p>	

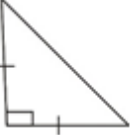
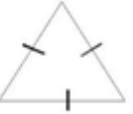

Volume	Common Errors
<p>Question 3</p> <p>a) $5000\text{mm}^3 = 5\text{cm}^3$ b) $4.2\text{L} = 4200\text{ml}$ c) $2.6\text{m}^3 = 2600\text{L}$ d) $6.2\text{kL} = 6200\text{L}$</p>	<p>Question 3</p> <p>Multiply by the conversion factor instead of dividing, and vice versa</p> <p>a) Use the linear conversion factor and divide by 10.</p>
<p>Question 4</p> <p>a) 108cm^3 b) 64m^3 c) 31cm^3 d) $V = 197.9203372\text{m}^3$</p>	<p>Question 4</p> <p>Calculate surface area instead of volume.</p> <p>c) and d) just multiply the values given. d) Use an incorrect formula for the circle.</p>
<p>Question 5</p> <p>a)</p> <p>i) 339.2920066m^3 ii) 339292.0066L iii) 339292006.6mL</p> <p>b) 24000cm^3 \therefore Possible dimensions $20\text{cm} \times 30\text{cm} \times 40\text{cm}$</p>	<p>Question 5</p> <p>b) Not making the connection between capacity and volume</p>

Time	Common Errors
<p>Question 1</p> <p>a) 3days b) 165mins c) 3weeks d) 33300secs</p>	<p>Question 1</p> <p>Multiply by the conversion factor instead of dividing, and vice versa</p>
<p>Question 2</p> <p>a)</p> <p>i) 0226 ii) 2114 iii) 0036</p> <p>b)</p> <p>i) 9hours 40minutes 12seconds ii) 5 hours 15 minutes iii) 7 hours 55 minutes 48 seconds</p> <p>c)</p> <p>i) 2 hours 15 minutes ii) 20 hours 30 minutes iii) 6 hours 20 minutes</p> <p>d)</p> <p>i) 1 hours 55 minutes ii) 6 hours 51 minutes 38 seconds</p>	<p>Question 2</p> <p>a) Leaving the colon in the answer or not answering with 4 digits (i.e. not recognising the significance of the zeros)</p> <p>b) Thinking that the decimal part is the minutes and getting (i) 9 hours 67 minutes and possibly then 10 hours 7 minutes (ii) 5 hours 25 minutes (iii) 7 hours 93 minutes and possibly then 8 hours 33 minutes.</p> <p>b), c) and d) issues with working with 60 as a unit when working between hours, minutes and seconds.</p>
<p>Question 3</p> <p>a) 7am Sydney b) 11am NSW time</p>	<p>Question 3</p> <p>a) Adding 10 hours to 5:00pm rather than subtracting b) Subtracting 2 hours from 9:00am rather than adding</p>

Right Angled Triangles	Common Errors
<p>Question 1 a) WY b) n</p>	
<p>Question 2 a) 13cm b) $\sqrt{45} m$</p>	<p>Question 2 Not knowing what exact value referred to, they may just round to the nearest whole number.</p>
<p>Question 3 $10^2 = 6^2 + 8^2$ $100 = 36 + 64$ $100 = 100$ <i>\therefore the triangle is right – angled</i></p>	<p>Question 3 State that it is not a right angles triangle as there is no right angle symbol.</p>
<p>Question 4 a) 9.4 cm b) i) 17m ii) 50m</p>	<p>Question 4 b) i) Not subtracting the 5m from the vertical distance i.e. use 13m and 15m to find x. ii) Add the lengths of all the lines on the shape, not just the outside lengths.</p>

Properties of Geometric Figures (Part 1)	Common Errors
Question 1 a) i) $\angle R$ or $\angle PRQ$ or $\angle QRP$ ii) $\triangle PQR$ b) i) $\angle A$ or $\angle DAB$ or $\angle BAD$ ii) (quadrilateral) ABCD	Question 1 There may be some confusion between naming angles, triangles and quadrilaterals with classifying them.

Question 2

TRIANGLE	OBTUSE ANGLED	ACUTE ANGLED	SCALENE	ISOSCELES	EQUILATERAL	RIGHT ANGLED
				✓		✓
		✓			✓	
	✓		✓			





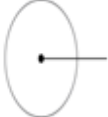




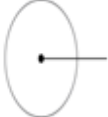




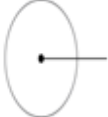
Common Error

Students may only tick one box per triangle.

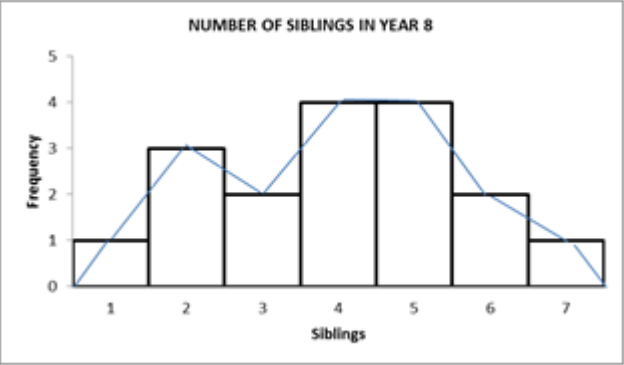
Question 3

	RECTANGLE	SQUARE	PARRALLELOGRAM	TRAPEZIUM	RHOMBUS	KITE
Opposite sides are parallel	✓	✓	✓		✓	
Opposite sides are equal	✓	✓	✓		✓	
Adjacent sides are perpendicular	✓	✓				
Opposite angles are equal	✓	✓	✓		✓	
Diagonals are equal	✓	✓				
Diagonals bisect each other	✓	✓	✓		✓	
Diagonals bisect each other at right angles		✓			✓	✓
Diagonals bisect the angles of the quadrilateral		✓				

Properties of Geometric Figures (Part 1)	Common Errors
<p>Question 4</p> <p>a) 180° b) 360°</p>	
<p>Question 5</p> <p>a) $y^\circ = 50^\circ$ (angle sum of a triangle is 180°) b) $r \text{ cm} = 7 \text{ cm}$ (isosceles triangle given base angles are equal) c) $m^\circ = 85^\circ$ (angle sum of a quadrilateral is 360°) d) $w^\circ = 100^\circ$ (opposite angles of a parallelogram are equal) e) $y \text{ cm} = 5 \text{ cm}$ (kite)</p>	<p>Question 5</p> <p>Students may be able to find the value of the pronumeral, but not express the reason correctly or concisely. Reasons may reflect the working done rather than the geometric properties of the shapes.</p>
Properties of Geometric Figures (Part 2)	Common Errors
<p>Question 1</p> <p>a) Two figures have the same size and shape b) the two triangles and the two circles are congruent</p>	<p>Question 1</p> <p>Only circling one pair of shapes.</p>
<p>Question 2</p> <p>a) side-side-side (SSS); side-angle-side (SAS); angle-angle-side (AAS); right angle-hypotenuse-side (RHS) b) A and C (RHS) c) i) SAS ii) AAS</p>	

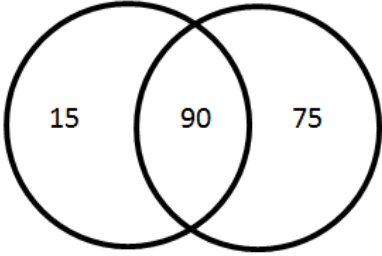
Angles	Common Errors																		
Question 1 i) $\angle A$ or $\angle BAC$ or $\angle CAB$ ii) $\angle CAD$ or $\angle DAC$	Question 1 There may be some confusion between naming angles and classifying them.																		
Question 2 <table border="1"> <thead> <tr> <th>DEFINITION</th> <th>TYPE OF ANGLE</th> <th>DIAGRAM</th> </tr> </thead> <tbody> <tr> <td>An angle that is less than 90°</td> <td>Acute angle</td> <td></td> </tr> <tr> <td>An angle that is 90°</td> <td>Right angle</td> <td></td> </tr> <tr> <td>An angle that is greater than 90° and less than 180°</td> <td>Obtuse angle</td> <td></td> </tr> <tr> <td>An angle that is 180°</td> <td>Straight line</td> <td></td> </tr> <tr> <td>An angle that adds up to 360°</td> <td>Revolution</td> <td></td> </tr> </tbody> </table>		DEFINITION	TYPE OF ANGLE	DIAGRAM	An angle that is less than 90°	Acute angle		An angle that is 90°	Right angle		An angle that is greater than 90° and less than 180°	Obtuse angle		An angle that is 180°	Straight line		An angle that adds up to 360°	Revolution	
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Question 3 i) $BE \perp AC$																			
Question 4 i) 60° ii) 70°																			
Question 5 a) $x^\circ = 120^\circ$ b) $w^\circ = 133^\circ$ c) $k^\circ = 66^\circ$																			
Question 6 a) corresponding angles; equal b) alternate angles; equal c) co-interior angles; supplementary																			
Question 7 a) $x = 119^\circ$ b) $x = 94^\circ$ c) $x = 91^\circ$																			

Data Collection and Representation	Common Errors																											
<p>Question 1 a) categorical b) quantitative discrete c) quantitative continuous</p>																												
<p>Question 2 A population includes every member of a group; whereas a sample contains a part of a population.</p>																												
<p>Question 3 a) i) Observation ii) Census iii) Sample b) Time consuming, expensive c) i) No ii) Yes iii) Randomly select students from every year group</p>																												
<p>Question 4 Primary: experiment, questionnaire, survey Secondary: newspapers, internet, books</p>																												
<p>Question 5 a)</p> <table border="1"> <thead> <tr> <th>SIBLINGS</th> <th>TALLY</th> <th>FREQUENCY</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>I</td> <td>1</td> </tr> <tr> <td>1</td> <td>III</td> <td>3</td> </tr> <tr> <td>2</td> <td>II</td> <td>2</td> </tr> <tr> <td>3</td> <td>IIII</td> <td>4</td> </tr> <tr> <td>4</td> <td>IIII</td> <td>4</td> </tr> <tr> <td>5</td> <td>II</td> <td>2</td> </tr> <tr> <td>6</td> <td>I</td> <td>1</td> </tr> <tr> <td colspan="2" style="text-align: right;">TOTAL:</td> <td>17</td> </tr> </tbody> </table>	SIBLINGS	TALLY	FREQUENCY	0	I	1	1	III	3	2	II	2	3	IIII	4	4	IIII	4	5	II	2	6	I	1	TOTAL:		17	<p>Question 5</p>
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6	I	1																										
TOTAL:		17																										

Data Collection and Representation	Common Errors										
<p>b)</p>  <p>b) 17 c) 4 d) 3 e) 41%</p>	<p>b) Adding the values in the sibling's column instead of the frequency column to get 21 d) At least statements always causes confusion, there will be all sorts of answers that will include calculating, less than 2, 2 or less, greater than 2 and greater than or equal to 2.</p>										
<p>Question 6 a) 4 b) 11 c) 6</p>											
<p>Question 7</p> <table border="1"> <tbody> <tr> <td>0</td> <td>2 3 6 8 8</td> </tr> <tr> <td>2</td> <td>0 0 4 5 5 9 9</td> </tr> <tr> <td>2</td> <td>0 2 3</td> </tr> <tr> <td>3</td> <td>1 4</td> </tr> <tr> <td>4</td> <td>2 4</td> </tr> </tbody> </table>	0	2 3 6 8 8	2	0 0 4 5 5 9 9	2	0 2 3	3	1 4	4	2 4	
0	2 3 6 8 8										
2	0 0 4 5 5 9 9										
2	0 2 3										
3	1 4										
4	2 4										
<p>Question 8 a) Apples b) Figs c) 40 d) 15%</p>	<p>Question 8 c) Writing the percentage instead of calculating the numerical amount.</p>										

Single Variable Data Analysis	Common Errors																		
<p>Question 1 Mean, median, mode. Range</p>																			
<p>Question 2 a) 12 b) 27 c) 12.9 d) No mode</p>	<p>Question 2 Mix up the meaning of mean, mode and median.</p>																		
<p>Question 3 a) 8 b) 8 c) 23 d) 8.3 e) 24 f) Mean slightly reduced, median remains the same.</p>	<p>Question 3 Mix up the meaning of mean, mode and median.</p>																		
<p>Question 4 a) Mean = 154.3 Median = 153 Range = 26 b) 154.3 c) 167 cm d) No</p>	<p>Question 4 Mix up the meaning of mean and median</p>																		
<p>Question 5</p> <table border="1"> <thead> <tr> <th>SCORE (x)</th> <th>FREQUENCY (f)</th> <th>fx</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>2</td> <td>0</td> </tr> <tr> <td>1</td> <td>3</td> <td>3</td> </tr> <tr> <td>2</td> <td>3</td> <td>6</td> </tr> <tr> <td>3</td> <td>4</td> <td>12</td> </tr> <tr> <td>Total:</td> <td>12</td> <td>21</td> </tr> </tbody> </table> <p>a) 1.75 b) 2</p>	SCORE (x)	FREQUENCY (f)	fx	0	2	0	1	3	3	2	3	6	3	4	12	Total:	12	21	
SCORE (x)	FREQUENCY (f)	fx																	
0	2	0																	
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Probability (Part 1)	Common Errors
<p>Question 1</p> <p>a)</p> <ul style="list-style-type: none"> i) Even chance ii) Very unlikely iii) Even chance <p>b)</p> <ul style="list-style-type: none"> i) $S = \{\text{heads, tails}\}$ ii) $S = \{1, 2, 3, 4, 5, 6\}$ <p>c)</p> <ul style="list-style-type: none"> i) Pink 2, Red 2, Blue 2, Jade 2 ii) Yes 	
<p>Question 2</p> <p>a) $\frac{1}{2}$ or 0.5</p> <p>b) 1</p> <p>c) 0</p>	<p>Question 2</p> <p>Giving words to describe the probability of the events instead of giving numerical values.</p>
<p>Question 3</p> <p>a) $\frac{2}{5}$</p> <p>b) $\frac{3}{5}$</p> <p>c) $\frac{3}{5}$</p> <p>d) $\frac{2}{5}$</p>	<p>Question 3</p> <p>Giving words to describe the probability of the events instead of giving numerical values.</p>

Probability (Part 2)	Common Errors																				
<p>Question 1</p> <p>a) $\frac{33}{36}$</p> <p>b) $\frac{33}{36}$</p> <p>c) $\frac{1}{6}$</p> <p>d) $\frac{1}{6}$</p> <p>e) Mutually exclusive; a number can either be odd or even, never both</p> <p>f) Non-mutually exclusive; 5 is classified an odd number</p> <p>g) (any event that can occur at the same time)</p>																					
<p>Question 2</p> <p>a) 39</p> <p>b) 20</p> <p>c) 33</p> <p>d) 15</p> <p>e) 68</p>	<p>Question 2</p> <p>a) Including only the 19, not seeing that the 20 who do both should be included.</p> <p>c) Misinterpreting the or to include all that do either sport i.e. adding all the three values in the circles to get 53</p>																				
<p>Question 3</p> <p>a) 40</p> <p>b) 30</p> <p>c) 15</p> <p>d) 85</p>																					
<p>Question 4</p> <table border="1"> <thead> <tr> <th colspan="4">JOB STATUS - RAYS TOWN</th> </tr> <tr> <th></th> <th>EMPLOYED</th> <th>UNEMPLOYED</th> <th>Total</th> </tr> </thead> <tbody> <tr> <th>MEN</th> <td>90</td> <td>15</td> <td>105</td> </tr> <tr> <th>WOMEN</th> <td>75</td> <td>32</td> <td>108</td> </tr> <tr> <th>Total</th> <td>165</td> <td>47</td> <td>213</td> </tr> </tbody> </table> <p>a) 90</p> <p>b) 47</p> <p>c) 213</p> <p>d)</p> 		JOB STATUS - RAYS TOWN					EMPLOYED	UNEMPLOYED	Total	MEN	90	15	105	WOMEN	75	32	108	Total	165	47	213
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