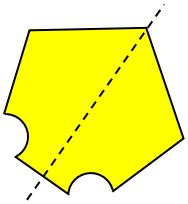
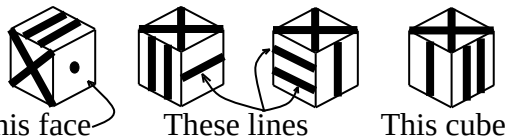
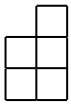
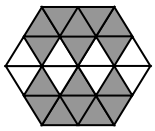
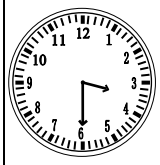
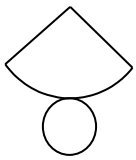
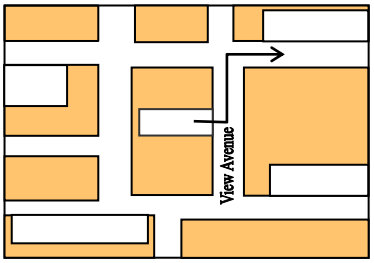
YEAR 7 – PAPER SIX
ANSWERS AND LEARNING STATEMENT
NON CALCULATOR

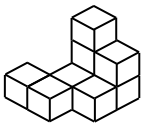
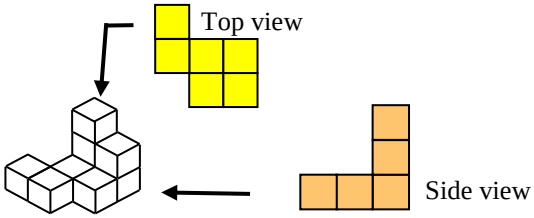
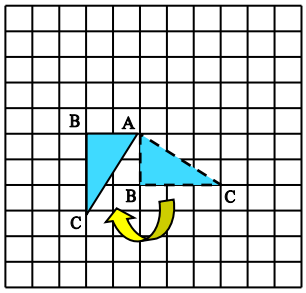
QUESTION	ANSWER	WORKED SOLUTION	LEARNING STATEMENT A student can	NSW SYLLABUS
1	60	In December there are 5 symbols which represent 100 bikes. Hence, each symbol represents 20 bikes. In January there are 3 symbols, then they represent 60 bikes.	Extract information from a picture graph.	DS 2.1
2	16:30	It would be 4:30 pm when Peter gets home from school. To express this in 24 hour time, add 12 hours so the answer is 16:30.	Convert analogue time to 24 hr digital time.	MS 3.5
3	2^3	$2+2+2+2 = 8$. $2^2 = 4 \neq 8$, $2^3 = 8$, $2^4 = 16 \neq 8$, $4^2 = 16 \neq 8$ therefore $2+2+2+2 = 2^3$	Understand the meaning of small positive whole-number powers.	NS 4.1
4	0.075	$7.5 \div 100 = 0.075$	Converting percentages to decimals.	NS 4.3
5	Bluetown	Jameston, Oakland and Bluetown are South of Greenpark. Poll Park and Bluetown are East of Jamestown. Bluetown is in both sets.	Locate a point on a simple map using major compass points.	SG 2.3
6	29 Matchsticks	There are seven extra matchsticks added each time. Hence, shape 4 will have 22 + 7 = 29 matchsticks	Identify and continues a number pattern from a given diagram.	PAS 4.2
7		Only this shape has an axis of symmetry. 	Recognise a line of symmetry drawn on an irregular 2D shape.	SGS2.2a
8	\$500 + \$700 + \$1000	\$495 ≈ \$500, \$710 ≈ \$700 and \$995 ≈ \$1000 so best approximation is: \$500 + \$700 + \$1000	Select the best method for estimating a total.	NS 2.2
9	25%	$\frac{30}{120} \times 100 = 25\%$	Express one quantity as a simple percentage of another.	NS 3.4
10	4th spinner	1st spinner: probability of ring = $^2/_3$ 2nd spinner: probability of ring = $^1/_2$ 3rd spinner: probability of ring = $^0/_6$ 4th spinner: probability of ring = $^1/_6$ Hence, the 4th spinner has the least chance, but is not impossible.	Describe the probability of an event using the language of chance.	NS 2.5

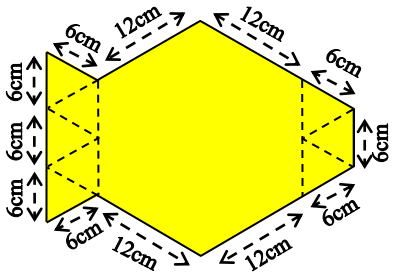
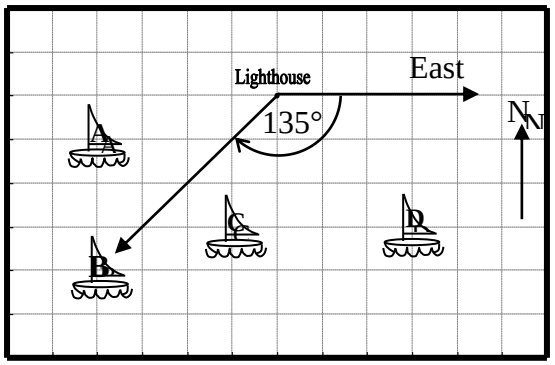
11	9	$28 \div 7 = 4$, $36 \div 4 = 9$ so the number in the box should be "9"	Recall division/multiplication facts to complete a number sentence.	PAS3.1b
12	January, October and December.	In January the temperature is 30°C, in October about 27°C and in December it is about 32°C. In every other month the temperature is less than 25°C.	Analyse data presented in a line graph.	DS 4.1
13	24 m	3cm represents 6m so 1cm represents 2m. 12cm represents $2 \times 12 = 24$m	Identify and uses the scale used in a scale drawing.	SGS 4.4
14	0.06	0.15 and 0.2 are both bigger than 0.1, 0.039 is less than 0.04. 0.06 is the only number between 0.04 and 0.1	Apply knowledge of place value to compare decimals.	NS 4.3
15	56 cm	Sum of vertical sides is $2 \times 12 = 24$ cm Sum of horizontal sides is $2 \times 16 = 32$ cm Therefore, the perimeter is $24 + 32 = 56$cm	Calculate the perimeter of a composite rectangular shape.	MS 4.1
16	1 in 3	20 in 60 is the same as 1 in 3	Calculate a proportion to describe the likelihood of an event occurring.	NS 3.5
17	28	7 shovels of sand make 3 metres of pavement. Hence, to make 12 metres of pavement he needs $4 \times 7 = 28$ shovels.	Solve a proportion problem in a practical context.	NS 4.3
18	Christine	Jessica defeated Hannah, Dimitra defeated Jessica, Louise defeated Dimitra and Christine was the only undefeated competitor. Hence, Christine was the winner.	Interpret a description of a set of relationships and then arranges them in order.	NS 3.1
19	90	$\$7.50 = 3 \times \$2.50$ so the greatest number of marbles that can be bought is $3 \times 30 = 90$ marbles	Solve a proportion problem in a practical context.	NS 4.3
20	The fourth cube is correct	 This face should be on the bottom. These lines should be vertical. This cube is correct.	Identify the net of a prism with different faces.	SGS 3.1
21	74°	Read from 0° clockwise to 70° then an additional 4 ° to 74°	Read a protractor scale to accurately measure an angle.	SGS3.2b
22	18	There are 8 students that live less than 2km away, plus 10 more students who live between 2km and 4km. Therefore, 18 students live less than 4km away from school.	Interpret information and use data to calculate from a two way table.	DS 2.1

23	0.3, 0.29, 0.07	0.3 is the largest, 0.07 is the smallest, so the correct sequence is 0.3, 0.29, 0.07	Order a set of decimals with differing numbers of decimal places.	NS 3.4
24	3.25m	$8 - 3 \times 0.5 = 8 - 1.5 = 6.5$m. So each door is $6.5 \div 2 = 3.25$m	Solve a multi-step problem involving operations with decimals.	NS 4.3
25		The triangular space on the first shape requires a triangle with base 3 units and height 3 units. Hence, this shape **cannot** be joined to Andrew's triangle.	Manipulate and visualise two-dimensional shapes.	SGS3.2a
26	12	$2.4 \div 0.2$ is equivalent to $24 \div 2$, hence the answer is 12	Use division, or another strategy, to solve a decimal problem.	NS 4.3
27		The required view is two squares wide, three squares high on the right and two squares high on the left.	Recognise the side view of a 3D model.	SGS 3.1
28	$\frac{3}{10}$	$\frac{1}{5}+\frac{1}{2}=\frac{2}{10}+\frac{5}{10}=\frac{7}{10}$ Hence, the fraction of the group who prefer the slippery dip is $1-\frac{7}{10}=\frac{3}{10}$	Solve a multi-step problem involving fraction operations.	NS 4.3
29		$\frac{1}{2}$ of the first shape is shaded, $\frac{3}{4}$ of the second shape is shaded and $\frac{1}{3}$ of the last shape is shaded. The third has $\frac{2}{3}$ of its area shaded.	Identify a shape that has $\frac{2}{3}$ of its area shaded.	NS 4.3
30	40	The total number of votes for Kevin and Patrick is $120 - 36 = 84$ votes. Patrick must receive less than half these votes, that is $84 \div 2 = 42$ votes. Hence, 40 the only possible answer.	Interpret data displayed in a table to solve a problem.	DS 2.1
31	1	Andrew has $6 \times 8 + 3 = 51$ CDs. When he grouped them in 5 he will get $51 \div 5 = 10$ groups with 1 left over.	Select and use an appropriate sequence of operations to solve a problem.	NS 3.3
32	14kg	1.5 kg of fish costs \$20 \$20 could buy 14 kg of potatoes	Extract information from a pair of line graphs linked by a common variable.	DS 4.1

YEAR 7 – PAPER SIX – CALCULATOR ALLOWED

QUESTION	ANSWER	WORKED SOLUTION	LEARNING STATEMENT A student can	NSW SYLLABUS
1	90	There are 2 more tree symbols in Greenland. Therefore there are $2\times45 = 90$ more trees in Greenland. Alternative method: The number of trees in Greenland is $5\times45 = 225$. The number of trees in Highview is $3\times45 = 135$. Hence, there are $225 - 135 = 90$ more trees in Greenland.	Extract information from a picture graph.	DS 2.1
2	$ 9024	9240 is 9 thousand, 2 hundred and forty. 9204 is 9 thousand, 2 hundred and four. 9220 is 9 thousand, 2 hundred and twenty.	Match a four digit number with its word form.	NS 2.1
3		75° is almost 90°, so the diagram where the hands of the clock are 75° apart is on the clock showing 3:30	Use the knowledge of degrees in a right angle to estimate the size of an acute angle.	SGS 3.2b
4	$190	Total income over five days: $240 + $220 + $180 + $160 + $150 = $950 Average income per day: $950 ÷ 5 = $190	Calculate the average (mean) of a set of data.	DS 3.1
5	$7\frac{2}{7}$	$1\frac{2}{7}$ is being added each time so the next number is $7\frac{2}{7}$	Solve a sequence problem involving mixed numerals.	NS 3.4
6		Only this net forms a cone when folded.	Identify the net of a solid shape.	SGS 3.1
7	60 km	Jason drove $80 \times \frac{45}{60} = 60$ km	Solve a simple rates problem involving distance and time.	NS 4.3
8	Sports Club		Interpret positional language to follow a given route on a plan.	SGS 3.3

9	5 ways	1 then 5, 2 then 4, 3 then 3, 4 then 2, 5 then 1	Identify the set of all possible outcomes for a simple compound event to solve a problem.	NS 4.4
10	3400 litres	$12 \div 3 = 4$ 4×850 litres = 3400 litres	Solve a simple rates problem involving capacity and time.	NS 4.3
11			Interpret isometric grid drawings.	SGS 4.1
12		Each line must be rotated through 90° about A.	Draw a shape when given the size and direction of rotation.	SGS 3.2a
13	60m	If 5cm represents 100m, then 1cm represents 20m, so 3 cm would represent 60m.	Determine and use scale to calculate the side length of an enlarged shape.	SGS 4.4
14	10 slices	If 2 slices is one sixth then each slice is one twelfth. Therefore, the pizza is cut into 12 slices. Hence, 10 slices are left.	Calculate the total amount given a fractional amount.	NS 3.4
15	One quarter	$\frac{45}{180} = \frac{1}{4}$ so $\frac{46}{180} \approx \frac{1}{4}$	Estimate a common fraction from a given proportion involving whole numbers.	NS 4.3
16	45 litres	Number of litres Orlando bought \$54 ÷ \$1.20 = 45 litres	Solve a rates problem using division.	NS 4.3
17	2 hours 50 minutes	From 11:25 a.m until 1:25 p.m there are 2 hours. From 1:25 p.m until 2:15 p.m there are 50 minutes. Hence, total time is 2 hours 50 minutes.	Calculate elapsed time between digital times in am/pm notation.	MS 3.5
18	247 m²	Bird enclosure is 12 squares which represents 156m². Hence, dolphin enclosure which is 19 squares is $\frac{19}{12} \times 156 = 247\text{m}^2$	Calculate the area of a shape drawn on a square grid.	MS 3.2
19	Third triangle 94°, 43°,43°	The missing angle of the third triangle is 180° – (94° + 43°) = 43°. Hence, this triangle has an obtuse angle and the two other angles are equal.	Identify a 2D shape according to its side and angle properties.	SGS 4.3
20	1 out of 6	There are 2 cars in the 12 cards. This is equivalent to 1 out of 6.	Determine the probability of a simple event as a simplified ratio.	NS 3.5
21	37 rows	3.33m =333cm. Therefore, the number of rows of bricks is 333cm ÷ 9cm = 37rows.	Solve a problem involving division with decimal fractions.	NS 4.3

22	96 cm	 Each side of the regular hexagon is 12 cm. Hence, P = 6+12+12+6+6+6+12+12+6+18 = 96 cm	Use the properties of regular polygons to calculate the perimeter of a composite shape.	MS 4.1
23	6.2m	The middle giraffe is 5.4 – 4.6 = 0.8m taller than the small giraffe. Hence, the tallest giraffe is 5.4 + 0.8 = 6.2m.	Solve a multi-step problem involving decimal subtraction.	NS 2.4
24	1.6%	$\frac{32}{2000} \times \frac{100}{1} = 1.6\%$	Express a ratio as a percentage in a practical situation.	NS 4.3
25	Boat B		Use compass points and angle of turn to determine direction.	SGS 3.3
26	60°	The missing angle in the isosceles triangle is 65° (base angles equal). x + 65° + 55° = 180° (angle of a straight line) Hence, x = 180° – 120° = 60°	Use knowledge of angle properties to calculate a missing angle.	SGS 4.3
27	3008mm	3 m = 3000 mm so 3m 8mm = 3000mm + 8mm = 3008mm	Convert between metric units of length.	MS 3.1
28	1046	If Kate's and Suzan's membership numbers are equal then their sum would have been 2088 – 4 = 2084, and this means that Suzan's membership number is 2084 ÷ 2 = 1042. Hence, Kate's membership number is 1042 + 4 = 1046.	Solve a multi-step problem involving subtraction and division.	NS 3.4

29	540	Total number of parts is $3 + 2 = 5$ so $\frac{3}{5}$ of the movies are action. Hence, $\frac{3}{5} \times 900 = 540$ action movies.	Calculate a proportion from a given ratio.	NS 4.3
30	\$87.50	Water used in the shower was $35\% \times \$250 = \$87.50$	Use percentages to find a portion of a given number.	NS 3.4
31	54 m	65 mm represents 78m $\therefore$ 1 mm $= \frac{78}{65}$ m $\therefore$ 45 mm represents $45 \times \frac{78}{65} = 54$ m	Determine a distance on a scale drawing using a known distance	SGS 3.3
32	\$ 48.50	Each wall is $4\text{m} \times 3.2\text{m} = 12.8\text{m}^2$ So total area of walls is $4 \times 12.8\text{m}^2 = 51.2\text{m}^2$ Ceiling is $4 \times 4 = 16\text{m}^2$ Therefore, the total area is $51.2 + 16 = 67.2\text{m}^2$ Number of litres of paint needed is $67.2 \div 15 = 4.48$ litres. Hence, David must buy 5 litres. The lowest cost would be to buy two 2 litre cans and one 1 litre can, so the lowest cost is $2 \times \$18.50 + \$11.50 = \$ 48.50$	Use surface area to solve a practical problem.	MS 4.2