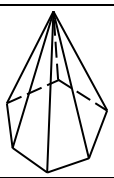
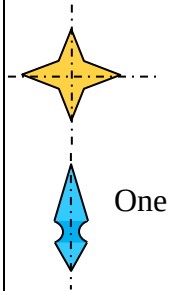
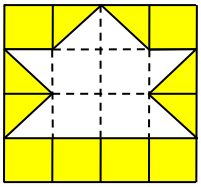
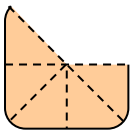
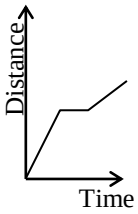
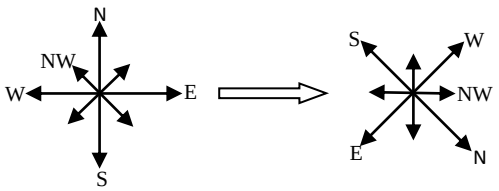
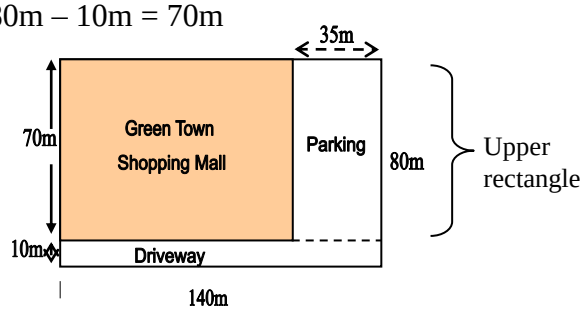
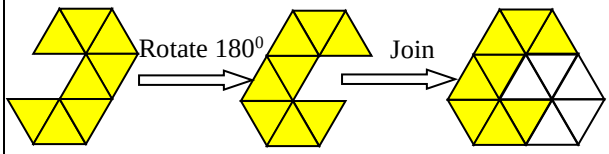
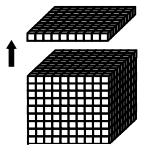
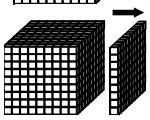
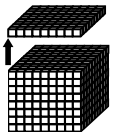
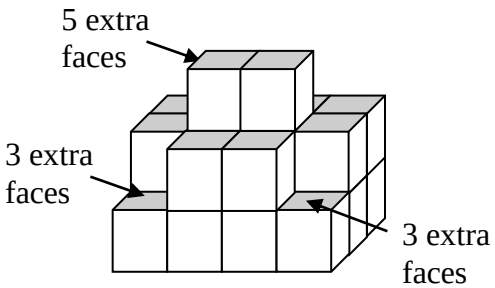
YEAR 7 – PAPER THREE
ANSWERS AND LEARNING STATEMENT
NON CALCULATOR

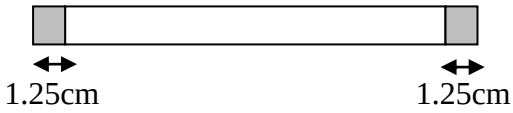
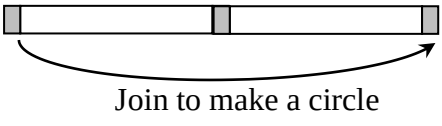
	ANSWER	WORKED SOLUTION	LEARNING STATEMENT A student can
1		The most expensive necklace is indicated by the dot furthest to the right on the graph which has the second lowest number of beads.	interpret different data sets in context. SP120
2		This pyramid has 12 edges and 7 faces i.e. the number of edges is 5 more than the number of faces.	construct simple prisms and pyramids. MG140
3	12.05	Since 12.10 – 11.85 = 0.25, then the width of each division is 0.25 ÷ 5 = 0.05. Now 12.10 – 0.05 = 12.05 and 12.05 – 0.05 = 12.00. A lies between 12.00 and 12.05 but is closer to 12.05	explore and practise efficient methods for solving problems requiring operations on decimals. NA128
4	Tania's answer is four more than the correct answer.	784 + 4 = 788 788 × 2 = 1576 Tania's answer 784 × 2 = 1568 1568 + 4 = 1572 Correct answer Tania's answer is 4 more than the correct answer.	solve problems involving multiplication of large numbers by one- or two-digit numbers. NA100
5	1 chance in 6	To land on a shaded square Brett would need to spin a 4 or a 7. There is only one number, the 7, out of a total of six numbers on the wheel which would land him on a shaded square i.e. 1 chance in 6	describe probabilities using fractions. SP144
6		 Two axes of symmetry One axis of symmetry The other two shapes have no axes of symmetry.	identify and describe the line symmetry of a range of two dimensional shapes. MG114

7	7 square centimetre	6 triangles = 3 squares and 3 squares + 4 squares = 7 squares ∴ Area = 7 square centimetres. 	solve problems involving areas using appropriate units. MG137
8	140mL	Each mark on the jug represents 100 ÷ 5 = 20mL. Therefore level of beef stock = 100 + 2 × 20 = 140mL	use scaled instruments to measure and compare capacities. MG084
9	F	C will fold down to be on the face to the right of A, D is on the opposite face to A and B will be on the front face on its side. E will fold down to be opposite B and F will be on the face to the left of A. So F is on the face indicated.	connect three-dimensional objects with their nets. MG111
10		$\frac{1}{8} + \frac{1}{4} = \frac{1}{8} + \frac{2}{8} = \frac{3}{8}$ eaten There is $\frac{5}{8}$ remaining.	solve problems involving addition and subtraction of fractions with the same or related denominators. NA126
11		The bus will travel further than Jessica can run in the same time. The first section of graph will be steeper than the last section of graph. When Jessica swims she is the same distance from home so the graph is flat during this time. Last graph is correct.	interpret features of travel graphs such as the slope of lines and the meaning of horizontal lines. NA180
12	6.00pm	1.5kg = 1500g and 1500 ÷ 500 = 3 Time required = 3 × 30 minutes = 90 minutes = 1½ hours. 1½ hours before 7.30 pm is 6.00pm	convert between common metric units. MG136
13	The pool	 The pool is north west of Janice.	describe routes using directional language. MG113

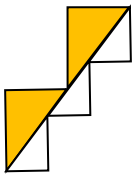
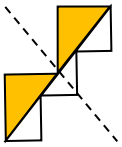
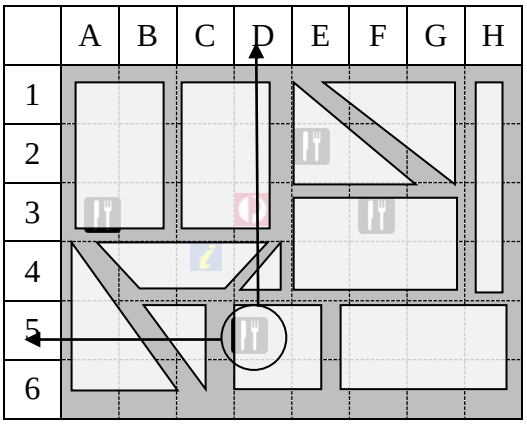
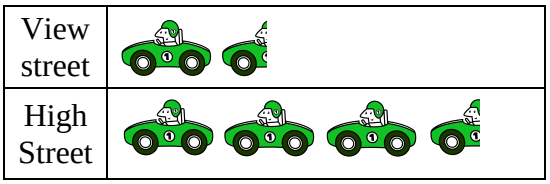
14	$14.00	1 bag of 5 oranges cost $3.50. Number of bags for 20 oranges = 20 ÷ 5 = 4. Cost = 4 × $3.50 = $14.00	use efficient mental and written strategies to solve problems. NA291
15	By Member-ship Date	The Membership Date is in order from earliest date to the most recent.	identify the best methods of presenting data to illustrate the results of investigations. SP119
16	$\frac{7}{8}$	The common denominator for all the fractions is 24. $\frac{1}{6} = \frac{4}{24}$ $\frac{1}{3} = \frac{8}{24}$ $\frac{3}{8} = \frac{9}{24}$ $\frac{7}{8} = \frac{21}{24}$ Now $\frac{5}{12} = \frac{10}{24}$ and $\frac{11}{12} = \frac{22}{24}$ $\frac{21}{24} = \frac{7}{8}$ lies between $\frac{5}{12}$ and $\frac{11}{12}$	compare fractions with related denominators. NA125
17	70 × 140 – 35 × 70	The width of the upper rectangle is 80m – 10m = 70m  Green Town Shopping Mall area = area of upper rectangle – area of remaining parking area. = 70 × 140 – 35 × 70	use the formula for the area of a rectangle to solve problems. MG159
18	$15	Petra gets 1 share and Stephen gets 3 shares. Total of 4 shares = $60 1 share = $60 ÷ 4 = $15 Petra gets $15.	recognise and solve problems involving simple ratios. NA173

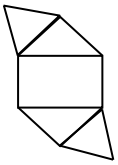
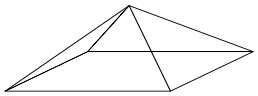
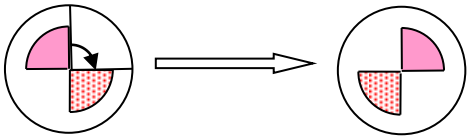
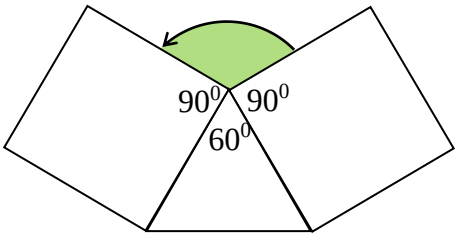
19	86.5kg	Weight loss in first 2 weeks = 99 – 96.5 = 2.5kg. Weight loss in next 2 weeks = 96.5 – 94 = 2.5kg Every 2 weeks Jess loses 2.5kg. If she continues with this pattern after 10 weeks (5 lots of 2 weeks) her loss is 5 × 2.5kg = 12.5 kg. Her weight will be 99kg – 12.5kg = 86.5kg.	explore and practice efficient methods for solving problems requiring operations on decimals. NA128
20	C and D	Rotate C through 180^0 and join with D 	identify the effects of transformations by manually flipping, sliding and turning two dimensional shapes. MG114
21	40 cents	$23.95 is approximately $24 or 2400 cents. Therefore, the cost of one fishing hook is about 2400 ÷ 60 = 240 ÷ 6 = 40 cents	use rounding to estimate the results of calculations with whole numbers and decimals. NA156
22	35.65	Difference between 1st and 3rd = 35.8 – 35.5 = 0.3 Half way = 0.3 ÷ 2 = 0.15 2nd place time = 35.5 + 0.15 = 35.65	explore and practice efficient methods for solving problems requiring operations on decimals. NA128
23	Victor won by 2 votes.	100 votes have been counted so there are 20 more votes still to count. Victor received ¾ of these = ¾ × 20 = 15 Therefore, William received another 5 votes. Votes for: Victor = 46 + 15 = 61 William = 54 + 5 = 59 Hence, Victor won by 2 votes.	find a simple fraction of a quantity where the result is a whole number. NA127

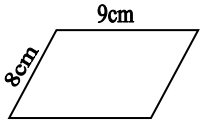
24	70	Stage 1: 10 (W) × 10 (D) cubes removed.  Stage 2: Rectangular prism is 9 (H) × 10 (W) × 10 (D) 9 (H) × 10 (D) cubes removed.  Stage 3: Rectangular prism is 9 (H) × 9 (W) × 10 (D) 9 (W) × 10 (D) cubes removed.  Stage 4: :Rectangular prism is 8 (H) × 9 (W) × 10 (D) Remove side 8 (H) × 10 (D) cubes removed. Stage 5 : Rectangular prism is 8 (H) × 8 (W) × 10 (D) Remove top 8 (W) × 10 (D) cubes removed Stage 6 : Rectangular prism is 7 (H) × 8 (W) × 10 (D) Remove side 7 (H) × 10 (D) cubes removed = 70 cubes	investigate additive and multiplicative patterns such as the number of tiles in a geometric pattern, or the number of dots or other shapes in successive repeats of a strip or border pattern looking for patterns in the way the numbers increase/decrease NA133
25	17	Initially there are 6 faces  Number of faces = 6 + 3 + 3 + 5 = 17	use 3D structures to visualize the structure of the building or prism. MG161
26	(18 +12) × 29	29 lots of $18 for blouses. 29 lots of $12 for skirts. 1 blouse + 1 skirt = $18 + $12 Total cost = (18 +12) × 29	apply the associative, commutative and distributive laws to aid mental and written computation. NA151

27	$\frac{4}{5}, \quad \frac{3}{4}, \quad \frac{7}{10}$	Common denominator is 20. $\frac{3}{4} = \frac{15}{20}, \ \frac{4}{5} = \frac{16}{20}, \ \frac{7}{10} = \frac{14}{20}$ Descending order is from largest to smallest: $\frac{16}{20}, \frac{15}{20}, \frac{14}{20} \ \ that\ is \ \ \frac{4}{5}, \frac{3}{4}, \frac{7}{10}$	compare fractions with related denominators. NA125
28	11	If there are R red jelly beans then there are 2R white jelly beans and 2R + 6 green jelly beans. Total = R + 2R + 2R + 6 = 61 5R + 6 = 61 5R = 55 $\therefore$R = 11 There are 11 red jelly beans	move fluently between algebraic and word representations as descriptions of the same situation. NA177
29	40m	If Caitlin is halfway in between she would be 50m from Angela's house. Since she is 20m closer to Angela than Ben then she is 10m to the left of the halfway mark. Caitlin is 40m from Angela's house.	apply a range of strategies to solve realistic problems. NA123
30	90km	Six runners ran 30km each for 2 days. So over 2 days the total run by the 6 runners was 6 × 30 = 180km. As in day 1 they ran 90km, then in day 2 they ran 180 – 90 = 90km	apply a range of strategies to solve realistic problems. NA123
31	1.2	$0.\overset{\curvearrowright}{4}08 \div 0.\overset{\curvearrowright}{3}4$ (Multiply both numbers by 100, so that divisor becomes a whole number) = 40.8÷34 = 1.2	divide decimals using efficient written strategies. NA154
32	20	 When two lengths of paper are joined to form a circle then there are two overlaps, so each length will be 1.25cm shorter.  Join to make a circle Each length of paper is now effectively 8.25cm – 1.25cm = 7cm long. Number of lengths of paper required to form a circle with circumference 140cm = 140 ÷ 7 = 20	explore and practice efficient methods for solving problems requiring operations on decimals. NA128

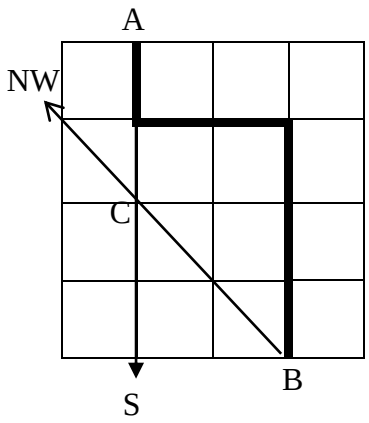
YEAR 7 – PAPER THREE – CALCULATOR ALLOWED

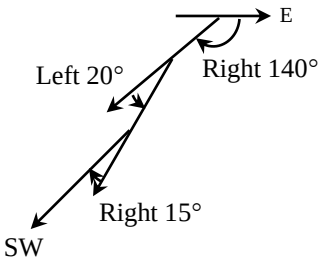
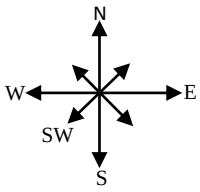
	ANSWER	WORKED SOLUTION	LEARNING STATEMENT A student can
1		This is the only shape with one axis of symmetry 	identify and describe the line symmetry of a range of two dimensional shapes. MG114
2	D5		use a grid reference system to describe locations. MG113
3	First graph	The number of cars in High St (70 cars) is two and a half times the number of cars in View St (28 cars). This means one of the top two diagrams is likely to be correct. Consider the following:  = 20 cars so 8 cars =  And 70 cars ≈ three and a half green cars. Hence the first graph is correct. 	interpret and compare data displays. SP147
4	20 weeks	1500 km ÷ 75 km = 20 weeks	apply a range of strategies to solve realistic problems. NA123

5	1028	4284 – 3256 = 1028 stamps	apply a range of strategies to solve realistic problems. NA123
6		Only this net folds to form a rectangular pyramid as shown. 	construct prisms and pyramids from nets. MG140
7	4003 km	Longest river is 6405 km. Shortest river is 2402 km. Difference = 6405 – 2402 = 4003 km	apply a range of strategies to solve realistic problems. NA123
8	36.5 ÷ 11	$3.\overset{\frown}{6}5 \div 1.\overset{\frown}{1} = 36.5 \div 11$ Or use a calculator to compare answers.	divide decimals using efficient written strategies. NA154
9		After 4 turns it is the same relative position i.e.  Need to turn another ¼ turn. 	investigate combinations of translations, reflections and rotations. MG142
10	70	For 1 – 50 cards the cost per card is \$2.20 + \$0.60 = \$2.80 Total cost = \$168. Now \$168 ÷ \$2.80 = 60 which is not between 1 and 50. If more than 50 cards the cost per card is \$1.80 + \$0.60 = \$2.40 Now \$168 ÷ \$2.40 = 70.	choose the most efficient form to solve a particular rate problem. NA173
11	120^0	The angles of a square are 90^0 and the angles of an equilateral triangle are 60^0.  Angle of revolution is 360^0. Marked angle = $360^0 - (90^0 + 90^0 + 60^0)$ = $360^0 - 240^0 = 120^0$.	investigate the angle sum of a triangle and the angle sum of a quadrilateral. MG166

12		If the perimeter of the parallelogram is 34cm then the sum of its adjacent sides is 17cm. Since 9cm + 8cm = 17cm this could be her parallelogram.	solve problems involving the comparison of lengths. MG137
13	370mm	5 bricks each 7cm high = 5 × 7cm = 35cm. 4 gaps each 5mm high = 4 × 5mm = 20mm Total height = 35cm + 20mm = 350mm + 20mm = 370mm	connect decimal representations to the metric system. MG135
14	432cm^2	The length of the two labels = 60cm – 4cm – 4cm – 4cm = 48cm Each label is 48cm ÷ 2 = 24 cm long. The width of each label = 24cm – 3cm – 3cm = 18cm Area = length × width = 24cm × 18cm = 432cm^2	use area formulas for rectangles and triangles to solve problems involving areas. MG159
15	Number of tiles × 4 + 2	1 tile: Perimeter = 6 = 4 + 2 2 tiles: Perimeter = 10 = 4 + (4 + 2) 3 tiles: Perimeter = 14 = 4 + (4 + 4 + 2) Each time a tile is added the perimeter increases by 4. Perimeter = Number of tiles × 4 + 2	investigate additive and multiplicative patterns such as the number of tiles in a geometric pattern. NA133
16	48	Need to find a multiple of 7 which is one more than a multiple of 8. Multiples of 8: 8, 16, 24, 32, 40, 48, 56,.. Multiples of 7: 7, 14, 21, 28, 35, 42, 49,.. This year I am 48 and next year I am 49.	identify and describe factors and multiples of whole numbers and use them to solve problems. NA098
17	660 000	Increase = 1.73million – 1.07million = 0.66 million = 0.66 × 1 000 000 = 660 000	multiply and divide decimals by powers of 10. NA130
18	□ = 5 △ = 6	Testing each pair of numbers First option: 16 + 4 × 5 = 16 + 20 = 36 ≠ 10 × 10 = 100 Second option: 16 + 4 × 5 = 16 + 20 = 36 = 6 × 6 = 36	appreciate the need for rules to complete multiple operations within the same number sentence. NA134

19	Rhombus	Only a rhombus has its diagonals perpendicular.	describe squares, rectangles, rhombuses, parallelograms, kites and trapeziums. MG165
20	4	Comparing the decimal part for each week, 0.1 = 0.10 is the smallest decimal part so he used the least amount of petrol in week 4.	compare, order and represent decimals NA105
21	2.5km	Average = $\frac{sum\ of\ the\ distances}{number\ of\ distances}$ Sum of distances = 1.2+2.4+1.8+2.7+3.4+5.1+1.3+2.1 = 20 Average = $\frac{20}{8} = 2.5$km	calculate the mean of a set of data. SP171
22	Blake's age = 2 × Son's age + 2	Blake's age = 2 × Son's age + 2	introduce the concept of variables as a way of representing numbers using letters. NA175
23	5.10pm	The show had 20 minutes more to run so it had been going for 2 hours 15 minutes – 20 minutes = 1 hour 55 minutes 1 hour 55 minutes before 7.05 pm is 5.10pm.	use units hours, minutes and seconds. MG110
24	750	¼ of the toys are for boys so ¾ of the toys are for girls. Number of girls' toys = ¾ × 5000 = 3750 20% of these are dolls. Number of dolls = $\frac{20}{100} \times 3750 = 750$	find a simple fraction of a quantity where the result is a whole number. NA127
25	11	Number of children shown = 0×6 + 1×12 + 2×21 + 4×10 + 5×1+ 6×3 = 117 Total number of children in 3 children families = 150 – 117 = 33 Number of families = 33 ÷ 3 = 11	interpret data displays. SP147
26	475	Caramel cakes sold = 65 + 75 = 140 This is 1/5 of all cakes sold. Total of chocolate and caramel cakes sold = 5 × 140 = 700 Chocolate cakes sold = 700 – 140 = 560 Chocolate cakes sold on Sunday = 560 – 85 = 475	apply a range of strategies to solve realistic problems. NA123

27	1414.72 m^2	Width of birdcage = 30m – 24.4m = 5.6m Length of birdcage = 48.8m – 40m = 8.8m Area to be mowed = total area – area of birdcage = 48.8 × 30 – 8.8 × 5.6 = 1414.72 m^2	use the area formula for rectangles to solve problems involving areas. MG159
28	32km	 Glen travels along the sides of six squares. The side of each square has a length = 96km ÷ 6 = 16km. Since C is NW of B and S of A it lies on the intersection of the two lines shown. C is 2 × 16km = 32 km from A.	describe routes using directional language. MG113
29	15	Product of the two numbers is 58 − 2 = 56 The factors of 56 are 1 and 56, 2 and 28, 4 and 16, 7 and 8. Minimum sum is = 7 + 8 = 15.	apply a range of strategies to solve realistic problems. NA123
30	30	Weight loss required = 111− 85 = 26kg Every three weeks John losses 2.6kg in weight. 26 ÷ 2.6 = 10 10 lots of 3 weeks = 30 weeks	explore and practice efficient methods for solving problems requiring operations on decimals. NA128
31	44	Number of fortnights = 6000 ÷ 270 = 22.2 Number of weeks = 22.2 × 2 = 44.4 It will take 44 weeks (nearest week)	apply a range of strategies to solve realistic problems . NA123

32	East	 Right 140° then left 20° then right 15° can be written as 140° − 20° + 15° = 135°. She has effectively turned 135° to the right. Turning 135° to the left gives the direction in which Mary first started walking which is East. 	investigate combinations of rotations. MG142