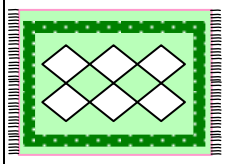
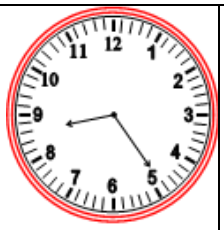
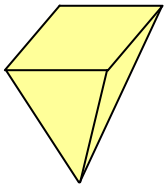
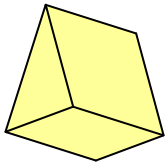
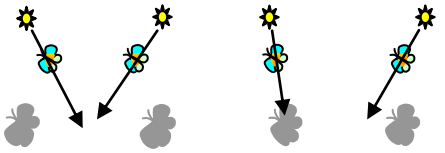
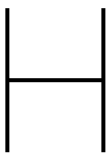
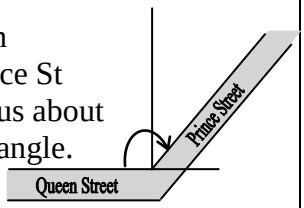
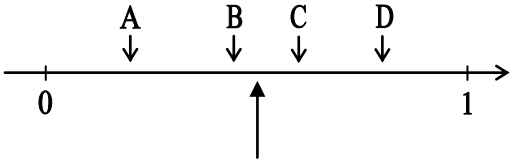
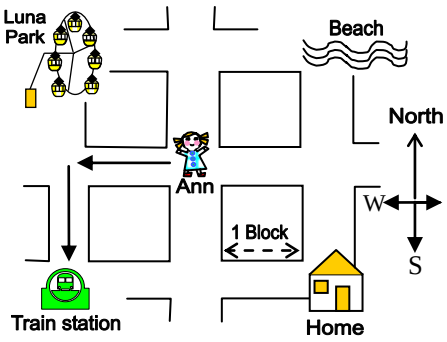
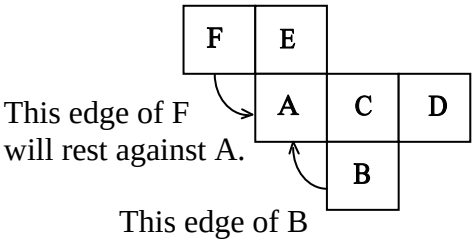
YEAR 5 − PAPER 2

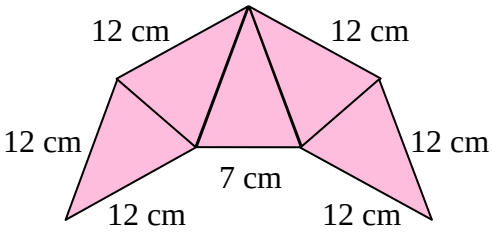
NUMERACY WORKED SOLUTIONS

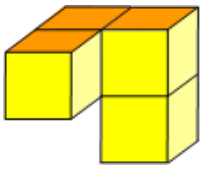
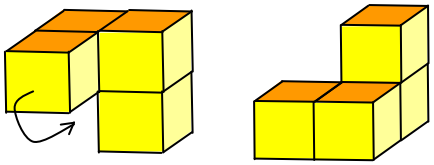
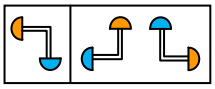
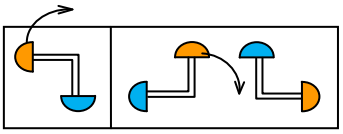
	ANSWER	EXPLANATION	AUSTRALIAN CURRICULUM REFERENCE A student can:
1		The first and fourth rug are the same length and longer than the other two rugs. As the fourth rug is the widest rug, and also the longest, it must have the greatest area.	compare the areas of regular and irregular shapes by informal means. (ACMMG087)
2	Wednesday was the coolest day.	The temperature on Monday was a little above 20ºC, on Tuesday was a little above 25ºC and on Wednesday was a little below 20ºC. This means the first statement is true, Wednesday was the coolest day.	use scaled instruments to measure and compare temperatures. (ACMMG084)
3	20	The column graph shows that there are 80 black cars and 60 red cars. 80 – 60 = 20. There are 20 more black cars than red cars.	describe and interpret different data sets in context. (ACMSP120)
4	172 cm	Peter is taller than Mary, so his height is more than 167 cm. Peter is shorter than James, so his height is less than 178 cm. The only alternative in this range is 172 cm.	solve problems involving the comparison of lengths and areas using appropriate units. (ACMMG137)
5	24	6 cats means 6 × 4 paws = 24 paws.	use efficient mental and written strategies to solve problems. (ACMNA291)

6		5:42 7:25 8:05	convert between units of time. (ACMMG085)
7	a square pyramid and a triangular prism.	This is a square pyramid.  This is a triangular prism. 	connect three-dimensional objects with their nets and other two-dimensional representations. (ACMMG111)
8		 The shadow should be on the straight line from the sun through the butterfly. Only the third diagram shows this.	investigate combinations of translations, reflections and rotations, with and without the use of digital technologies. (ACMMG142)
9	4	8 × 7 = 56 so 60 − ☐ = 56, so ☐ = 4	recall multiplication f acts up to 10 × 10 and related division facts. (ACMNA075)
10	$175	$25 × 7 = $175 OR 4 × $25 = $100, 3 × $25 = $75, total is: $175	solve problems involving multiplication of large numbers by one- or two-digit numbers. (ACMNA100)
11	9	Looking at the last 2 blouses we can see that the pattern works by adding 5 to get the next term. 4 + 5 = 9 9 + 5 = 14 14 + 5 = 19. The pattern always works, so the number of spots on the second blouse would be 9.	describe, continue and create patterns with fractions, decimals and whole numbers resulting from addition and subtraction. (ACMNA107)
12		For L and T the lines are perpendicular. For V the lines meet at an acute angle. For H the lines on the sides are parallel. So H is the answer.	investigate conditions for two lines to be parallel and solve simple numerical problems using reasoning. (ACMMG164)

13		On the first set of scales, 3 tennis balls are balanced by 2 cubes. On the second set of scales, there are 6 tennis balls. As there are twice as many tennis balls, twice as many cubes would be needed. $2 \times 2 = 4$. So 4 cubes are needed.	use scaled instruments to measure and compare masses. (ACMMG084)
14	8	The box is 6 cubes long and 3 cubes wide. When full the box would hold $6 \times 3 = 18$ cubes. There are only 10 cubes in the box, so the number missing would be $18 - 10 = 8$ cubes.	Compare and order several shapes and objects based on length, area, volume and capacity usin g appropriate uniform informal units. (ACMMG037)
15	$1.20	The next 2 coins after the 50 cent coin are a $1 coin and a 20 cent coin. The value of these two coins is $1.20.	describe, continue and create patterns with decimals and whole numbers resulting from addition. (ACMNA107)
16	it is more likely that this student chose mango than strawberry.	125 students chose mango and 115 who chose strawberry, so it is more likely that this student chose mango than strawberry. This is the only correct statement.	describe possible everyday events and order their chances of occurring. (ACMSP092)
17	200 g	On the scale the distance from 0 kg to 1 kg is divided into 5 equal sections. So each section is a fifth of a kilogram, which is 200 g. The arrow is pointing to the division before 1 kg, so it is 200 g less than 1 kg.	use scaled instruments to measure and compare masses. (ACMMG084)
18	140º	The angle between Queen St and Prince St is a right angle, plus about half another right angle. 90º + 45º = 135º, which is closest to 140º. 	compare angles and classify them as equal to, greater than or less than a right angle. (ACMMG089)

19	A	 This arrow points to the middle of the interval. This means that B is almost a half, and that C and D are both bigger than a half. Only A could represent $\frac{1}{5}$.	compare and order common unit fractions and locate and represent them on a number line. (ACMNA102)
20	Train Station		use a grid reference system to describe locations. Describe routes using landmarks and directional language. (ACMMG113)
21	52	25 girls and 27 boys chose surfing. 25 + 27 = 52. A total of 52 students chose surfing.	describe and interpret different data sets in context. (ACMSP120)
22	F	 F will be on the face indicated in the question.	connect three-dimensional objects with their nets and other two-dimensional representations. (ACMMG111)
23	96 m	12 × 8m = 96m The height of the tallest tree is about 96m.	select and apply efficient mental and written strategies to solve problems involving all four operations with whole numbers. (ACMNA123)

24	28.1 cm	25.5 – 24.2 = 1.3 cm 26.8 – 25.5 = 1.3 cm The pattern is that each figurine is 1.3cm taller than the previous one. The 4th figurine must be 26.8 + 1.3 = 28.1 cm.	continue and create sequences involving whole numbers and decimals. (ACMNA133)
25	by distance traveled per 20 L	The colour column is not in order, it has black at both ends. The number of seats column is not in order, it goes 7, 5, 4, 5. The length in metres column is not in order, it goes 4.4, 4, 3.8. 4.2. Only the distance traveled per 20L is ordered.	construct suitable data displays from given or collected data. Include tables, column graphs and picture graphs. (ACMSP096)
26	79 cm	 Perimeter = (6 × 12) + 7 = 72 + 7 = 79 cm	calculate the perimeter using familiar metric units. (ACMMG109)
27	30	For Golden St, 6 house diagrams represent 90 houses. This means that 1 house diagram represents 15 houses. Pink St has 2 house diagrams, which represent 15 × 2 = 30 houses. *Alternatively* In the diagram, Pink St has a third of the number of houses of Golden St. As 90 ÷ 3 = 30, Pink St has 30 houses.	construct suitable data displays from given or collected data, include picture graphs where one picture can represent many data values. (ACMSP096)
28	39	The 2 numbers Ronald began with were 34 – 6 = 28 and 17 – 6 = 11. The sum of these 2 numbers is 28 + 11 = 39.	select and apply efficient mental and written strategies to solve problems involving all four operations with whole numbers. (ACMNA123)

29	97 m	3 carriages have a length of 36 m, so each carriage is about 12m long. The engine is about the same length as one carriage. The length of 7 carriages and 1 engine is approximately 8 x 12 m = 96 m. so, the length of the train is closest to 97 m.	solve problems involving the comparison of lengths using appropriate units. (ACMMG137)
30		 If the first solid is rotated 90º anticlockwise, it will fit with Peter's solid to make a cube.	connect three-dimensional objects with their nets and other two-dimensional representations. (ACMMG111)
31		Only this group shows two quarter turns to the right. 	describe rotations of two-dimensional shapes. (ACMMG114)
32	$147	$84 ÷ 4 = $21 If one quarter is $21, then three quarters is 3 × $21 = $63 The total cost of the skirt and shirt is $84 + $63 = $147	find a simple fraction of a quantity where the result is a whole number. (ACMNA127)
33	$3.75	To find the number halfway between $3 and $4.50, add them together and divide the result by 2. $3 + $4.50 = $7.50 $7.50 ÷ 2 = $3.75 The third muffin is $3.75	select and apply efficient mental and written strategies to solve problems involving all four operations with whole numbers. (ACMNA123)
34	$112.50	$90 × 0.5 = $45 2 × $90 = $180 The total cost is $180 + $45 = $225 If they share equally each will pay a half of $225. $225 ÷ 2 = $112.50	multiply decimals by whole numbers and perform divisions that result in terminating decimals. (ACMNA129)

35	21	7 × 9 = 63 Vanessa had a total of 63 lollies. Each guest gets 3 lollies. 63 ÷ 3 = 21. Vanessa has 21 guests.	select and apply efficient mental and written strategies to solve problems involving all four operations with whole numbers. (ACMNA123)
36	6	Each cube has 6 faces. When 2 cubes of different sizes are stacked on top of each other, one face of the smaller cube cannot be seen, so a stack of 2 cubes has 6 + 5 = 11 faces. When another cube is placed on top, one more face will be covered, so 5 more faces will be added. Each time a new cube is added 5 more faces will be added, so 4 cubes will have 21 faces, 5 cubes will have 26 faces and 6 cubes will have 31 faces.	draw different views of prisms and solids formed from combinations of prisms. (ACMMG161)
37	11:01 am	The two lights flash together at 10:05am and again 7 minutes later, at 10:12 am continue adding 7 minutes, the times they flash together will be 10:19 am, 10:26 am, 10:33 am, 10:40 am, 10:47 am, 10:54 am, 11:01 am. So the first time after 11:00 am is 11:01 am.	use am and pm notation and solve simple time problems. (ACMMG086)
38	11	Kevin watched the least number of movies. Robert watched 4 more than Kevin. James watched 10 more than Kevin. If we subtract these 14 movies from the total they will each have watched the same number of the remaining movies. 47 – (4 + 10) = 33. 33 ÷ 3 = 11. Kevin watched 11 movies, Robert watched 4 more, which is 15. James watched 10 more, which is 21.	select and apply efficient mental and written strategies to solve problems involving all four operations with whole numbers. (ACMNA123)

39	55	The total of the three cards in all four hats is $4 \times 19 = 76$. The sum of Grace's 4 cards is 21. The sum of the remaining cards is $76 - 21 = 55$	select and apply efficient mental and written strategies to solve problems involving all four operations with whole numbers. (ACMNA123)
40	350 g	The bowl plus 4 bananas weigh 950g. The bowl plus 1 banana weighs 500g. By subtraction 3 bananas weigh 450g. By division, 1 banana weighs $450g \div 3 = 150g$. So the empty bowl weighs $500g - 150g = 350g$.	select and apply efficient mental and written strategies to solve problems involving all four operations with whole numbers. (ACMNA123)