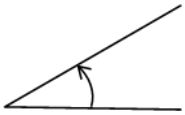
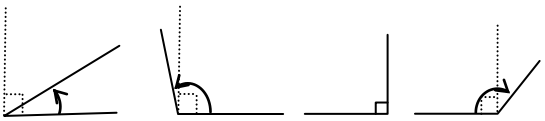
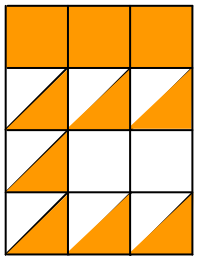
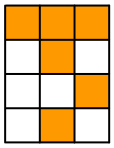
YEAR 5 − PAPER 4

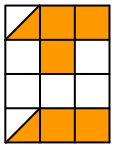
NUMERACY WORKED SOLUTIONS

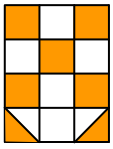
	ANSWER	EXPLANATION	AUSTRALIAN CURRICULUM REFERENCE A student can:
1	20	Oliver made 5 groups of 4 pieces. So he now has 20 pieces of cake.	use scaled instruments to measure and compare temperatures. (ACMMG084)
2	51 m	The middle building is the shortest, so its height must be less than 62 m, which is the height of the next shortest building. From the 4 choices available, only 51 m is a possible answer.	solve problems involving the comparison of lengths using appropriate units. (ACMMG137)
3	550	Each horizontal line on the graph represents 50 people. There are 250 visitors on Saturday and 300 visitors on Sunday. As 250 + 300 = 550, this means that the zoo had a total of 550 visitors that weekend.	describe and interpret different data sets in context. (ACMSP120)
4	35 m	7 × 5 m = 35 m In 7 hops the kangaroo can cover 35 m.	recall multiplication facts up to 10 × 10 and related division facts. (ACMNA075)

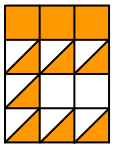
5		 If a line is drawn at right angles to the base, it would be seen that the first angle is less than 90º, making it an acute angle. The second and fourth angles were more than 90º. The third angle is exactly 90º.	compare angles and classify them as equal to, greater than or less than a right angle. (ACMMG089)
6	$\frac{4}{10}$	There are 10 ovals. 4 of the ovals contain a seal. This means that the fraction of ovals showing a seal is 4 out of 10, which is written as $\frac{4}{10}$	investigate equivalent fractions used in context. (ACMNA077)
7	Tom	The fastest competitor would have taken the least amount of time. Kevin and Tom both have times less than 1 minute and 8 seconds. Tom's time of 1 minute and 7.03 seconds is slightly quicker than Kevin's time of 1 minute and 7.04 seconds.	solve simple time problems. (ACMMG086)
8	21	We need to find how many lots of $8 there are in $168. $168 ÷ $8 = 21 There must be 21 children at this party.	solve problems involving division by a one digit number, including those that result in a remainder. (ACMNA101)
9	a number less than 4	None of these four numbers are less than 4, so it would be impossible for David to select a number less than 4.	describe possible everyday events and order their chances of occurring. (ACMSP092)

<table>
<tr>
<td>10</td>
<td>18 August</td>
<td>
<table>
<tr><th colspan="7">AUGUST</th></tr>
<tr><th>Sun</th><th>Mon</th><th>Tue</th><th>Wed</th><th>Thu</th><th>Fri</th><th>Sat</th></tr>
<tr><td></td><td></td><td></td><td>1</td><td>2</td><td>3</td><td>4</td></tr>
<tr><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td></tr>
<tr><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td></tr>
<tr><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td></tr>
<tr><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td><td>31</td><td></td></tr>
</table>
1st
2nd
3rd

By counting down the Saturday column it can be seen that the 3rd Saturday is the 18th.
</td>
<td>solve simple time problems.
(ACMMG086)</td>
</tr>
<tr>
<td>11</td>
<td>  </td>
<td>

This shape has 6 whole squares shaded.

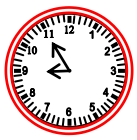
 
This shape has 5 whole squares and 2 halves, which is a total of 6 whole squares shaded.

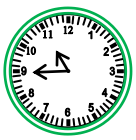
 
This shape has 5 whole squares and 2 halves, which is a total of 6 whole squares shaded.

 
This shape has 3 whole squares and 7 halves, which is a total of 6½ whole squares shaded.
</td>
<td>compare the areas of regular and irregular shapes by informal means.
(ACMMG087)</td>
</tr>
<tr>
<td>12</td>
<td>16</td>
<td>There are 3 fish symbols for Saturday which represent (3 × 8) 24 fish.

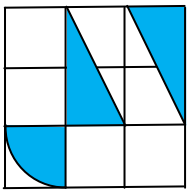
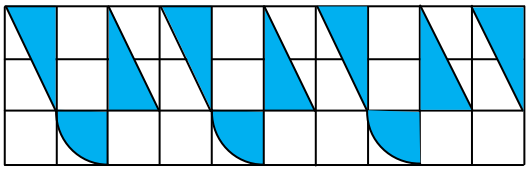
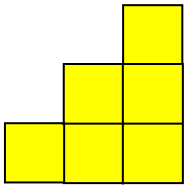
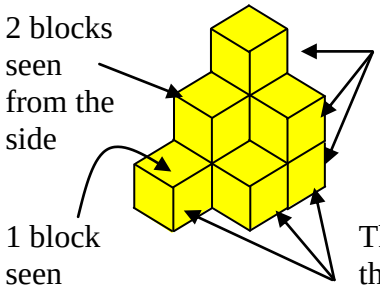
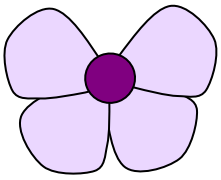
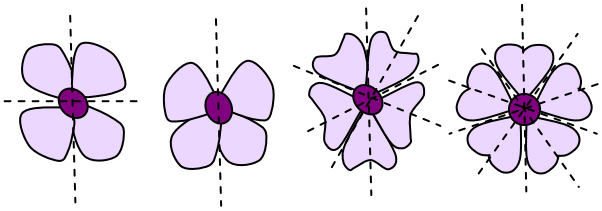
There are 5 fish symbols for Sunday which represent (5 × 8) 40 fish.

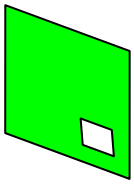
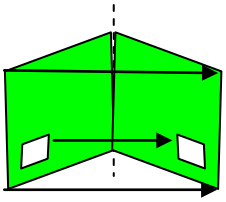
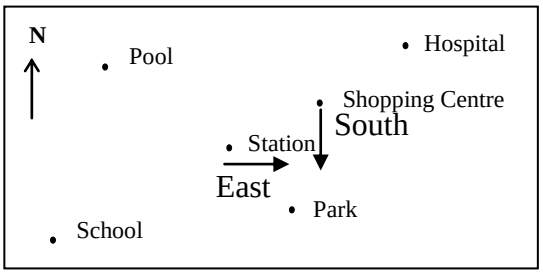
40 – 24 = 16 ∴ The fisherman caught 16 more fish on Sunday than Saturday.</td>
<td>construct suitable data displays from given or collected data. Include picture graphs where one picture can represent many data values.
(ACMSP096)</td>
</tr>
<tr>
<td>13</td>
<td> </td>
<td>Half an hour before 8:25 is 7:55

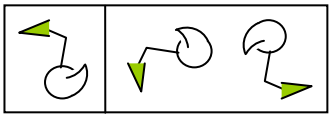
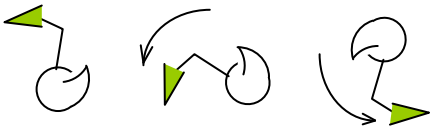
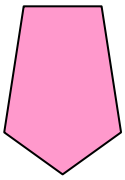
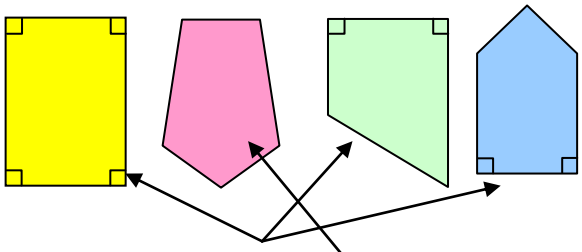
8:25

8:55

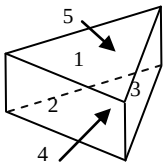
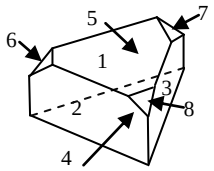
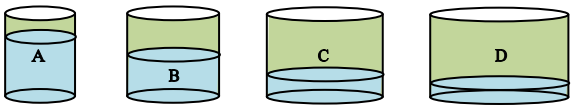
7:55

11:45

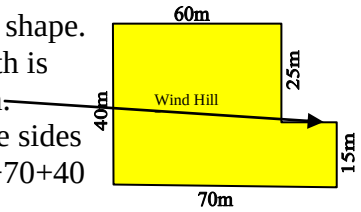
Only the 3rd clock shows 7:55, the time John left home.</td>
<td>convert between units of time.
(ACMMG085)</td>
</tr>
</table>

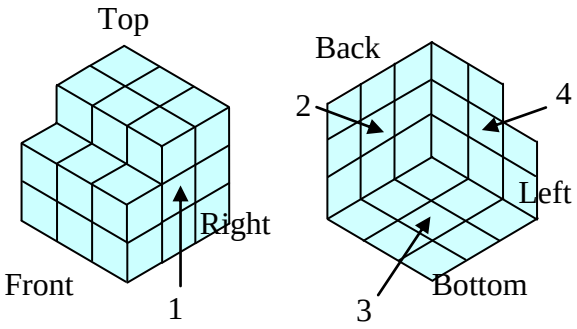
14	36, 43	The numbers in the pattern are getting bigger, so it may be made by adding the same number each time to make the next number. 22 – 15 = 7 29 – 22 = 7 so 7 is being added each time. 29 + 7 = 36 and 36 + 7 = 43 The next two numbers are 36 and 43	describe, continue and create patterns with whole numbers resulting from addition and subtraction. (ACMNA107)
15		 The last picture is the only to complete the pattern.	investigate and describe patterns with objects. (ACMNA018) All outcomes after year 1 mention only patterns made with numbers.
16			connect three-dimensional objects with their nets and other two-dimensional representations. (ACMMG111)
17	32	There are 24 apartments in Matthew Street and 8 in Rawson Street, making a total of 8 + 24 = 32 apartments in these two streets.	describe and interpret different data sets in context. (ACMSP120)
18		The axes of symmetry have been drawn on each of the flowers.  The second flower has only 1 axis of symmetry.	identify line and rotational symmetries. (ACMMG114)

19	volume	The bowls are not arranged by height because the second bowl is shorter than the bowls either side of it. They are not arranged by width as the second bowl is wider than the bowls either side of it. The volume of the bowls increases from left to right, so they are organised by volume.	solve problems involving the comparison of lengths and areas using appropriate units. (ACMMG137)
20		Each feature on the original shape is reflected across the dotted line, as shown. The third shape is the correct choice. 	describe translations, reflections and rotations of two-dimensional shapes. Identify line symmetries. (ACMMG114)
21	6	The question says that 3 rings cost $12. If the amount of money is multiplied by 2 to get $24, then the number of rings would also be multiplied by 2 to give 6 rings.	use efficient mental and written strategies to solve problems. (ACMNA291)
22	Park	 The School, Station and Park are all South of the Shopping Centre. Of these three, only the Park is East of the Station.	use simple scales, legends and directions to interpret information contained in basic maps. (ACMMG090)
23	6	$36 \div 4 = 9$, so $54 \div \square = 9$ To find what goes in the frame, use $54 \div 9 = 6$. So $\square$ represents 6.	solve problems involving division by a one digit number. (ACMNA101)

24	7	Tom needs to know how many lots of 4 L there are in 26 L. 26 ÷ 4 = 6.5. As Tom cannot buy a half a can of paint, he must buy 7 cans.	solve problems involving division by a one digit number, including those that result in a remainder. (ACMNA101)
25		 After the first 90° turn to the left. After the second 90° turn to the left.	describe rotations of two-dimensional shapes. Identify rotational symmetries. (ACMMG114)
26	$\frac{2}{3}$	Six friends are sharing 4 chocolate bars. To calculate how much each will get 4 must be divided by 6. 4 ÷ 6 can be written as $\frac{4}{6}$ which is equivalent to $\frac{2}{3}$.	investigate equivalent fractions used in contexts. (ACMNA077)
27		Two lines are perpendicular if they intersect at right angles.  These three shapes have sides at right angles to each other as shown. Only this shape has no perpendicular sides.	compare angles and classify them as equal to, greater than or less than a right angle . (ACMMG089)
28	48	When Peter buys 2 boxes of 24 cans it will cost 2 × $20, which is $40. He will have $10 change which is not enough to buy another box. The number of cans Peter will have is 2 × 24 = 48 cans.	solve problems involving purchases and the calculation of change to the nearest five cents. (ACMNA080)

29	24 cm	The total perimeter of the triangle is 60 cm. Subtracting the length of the base leaves 60 – 12 = 48. The length of each of the other two equal sides is 48 ÷ 2 = 24cm.	calculate the perimeter and area of rectangles using familiar metric units. (ACMMG109)
30	8	 The original triangular prism has 3 rectangular faces and 2 triangular faces. This is a total of 5 faces.  The altered shape still has the original 5 faces, which have changed slightly, plus an extra 3 triangular faces. This gives a total of 8 faces.	connect three-dimensional objects with their nets and other two-dimensional representations. (ACMMG111)
31	A	 As shown in the diagram above, the smallest base area will have the highest water level in the cylinder.	solve problems involving the comparison of lengths and areas using appropriate units. (ACMMG137)
32	20	For every marble David gives to Peter, the difference between the number of their marbles decreases by 2. Since David gave Peter 8 marbles, the difference between the number of their marbles decreases by 16. As David still have 4 more marbles than Peter, so he had initially 16 + 4 = 20 marbles more.	use efficient mental and written strategies to solve problems. (ACMNA291)
33	1.96 million dollars	To find the increase, subtract the 1980 price from the 2011 price. 5.38 – 3.42 1.96 So, the price increased by 1.96 million dollars.	subtract decimals and use estimation and rounding to check the reasonableness of answers. (ACMNA128)

34	5 days	Each day the 3 children drank 3 lots of 200 mL, which is 600 mL. 3 L is equal to 3000 mL. To find the number of days the bottle lasted, calculate how many times 600 will go into 3000. 3000 ÷ 600 = 5. The 3 litre bottle lasted 5 days.	select and apply efficient mental and written to solve problems involving all four operations with whole numbers. (ACMNA123)
35	220 m	Perimeter is the total distance around a shape. The missing length is 70m – 60m= 10m. The total of all the sides is 60+25+10+15+70+40 which is 220m. 	calculate the perimeter and area of rectangles using familiar metric units. (ACMMG109)
36	25	A half of 60 is 30. In 5 more pages Kevin will have read 30 pages. 30 – 5 = 25. Kevin has read 25 pages so far.	use efficient mental and written strategies to solve problems. (ACMNA291)
37	23	Albert needs 3 matches for the first shape, then 2 matches more for each additional shape. 47 – 3 = 44 44 ÷ 2 = 22. Albert can make 1 shape with the first 3 matches and 22 with the remaining 44 matches. This is a total of 23 shapes.	select and apply efficient mental and written to solve problems involving all four operations with whole numbers. (ACMNA123)
38	30 km	Sam walks 2.97 km, twice, each day. In 5 days he will walk 2.97 km ten times. 10 × 2.97km = 29.7km. This is about 30km.	multiply and divide decimals by powers of 10. (ACMNA130)
39	12	There were 60 visitors, $\frac{1}{10}$ of 60 is 6. $\frac{3}{10}$ of 60 is 3 × 6 = 18. So 18 visitors voted for the Monkey and 6 voted for the Lion. 18 – 6 = 12. The Monkey had 12 votes more than the Lion.	find a simple fraction of a quantity where the result is a whole number. (ACMNA127)

40	4	Two different views of the block are shown to include all six faces.  The arrows point to the small cubes with only one face painted.	connect three-dimensional objects with their nets and other two-dimensional representations. (ACMMG111)