

WA5MNACN3

Calculating with number

Core + Challenge

NAPLAN-style

Division with Remainders — Marking Key

I can divide by a one-digit number, find the remainder, and decide what it means in a problem.

For tutors and parents. Award method marks for correct working even if the final answer is wrong.

Marks summary

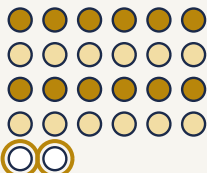
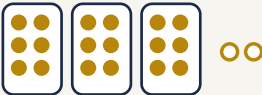
A Warm up: 16 B Practise: 20 C Think it through: 10 D Challenge: 9 **Total: 55**

Gold shading in this key shows what the child should have shaded or drawn. Accept any correct arrangement unless the question fixes it.

A

Warm up answers

/ 16 marks

Q	Answer	Model answer / notes	Marks
1	3 r 2	 3 groups of 5 = 15, and 2 left over.	1
2	5 r 2	5 groups of 4 = 20, and 2 left over.	1
3	6 r 1	6 groups of 3 = 18, and 1 left over.	1
4	4 r 2	 4 groups of 6 = 24, and 2 left over.	1
5	3 each, 2 left	 $14 \div 4 = 3 \text{ r } 2$.	1
6	6 each, 2 left	 $20 \div 3 = 6 \text{ r } 2$.	1
7	5 each, 1 left	$11 \div 2 = 5 \text{ r } 1$.	1
8	3 each, 2 left	$17 \div 5 = 3 \text{ r } 2$.	1
9	15 r 2	$47 \div 3 = 15 \text{ r } 2$. Check: $15 \times 3 + 2 = 47$.	1
10	21 r 2	$86 \div 4 = 21 \text{ r } 2$. Check: $21 \times 4 + 2 = 86$.	1

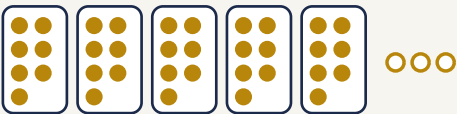
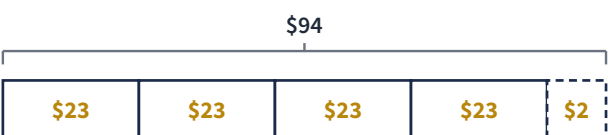
Division with Remainders · WA5MNACN3

Q	Answer	Model answer / notes	Marks
11	26 r 1	$\begin{array}{r} 26 \text{ r } 1 \\ 6 \overline{) 157} \\ \underline{12} \\ 37 \\ \underline{36} \\ 1 \end{array}$ $157 \div 6 = 26 \text{ r } 1$. Check: $26 \times 6 + 1 = 157$.	1
12	56 r 3	$\begin{array}{r} 56 \text{ r } 3 \\ 7 \overline{) 395} \\ \underline{35} \\ 45 \\ \underline{42} \\ 3 \end{array}$ $395 \div 7 = 56 \text{ r } 3$. Check: $56 \times 7 + 3 = 395$.	1
13	6	$40 \div 6 = 6 \text{ r } 4$. Only 6 boxes are full (round down).	1
14	8	$30 \div 4 = 7 \text{ r } 2$. The 2 extra students need a car too (round up).	1
15	1	$25 \div 4 = 6 \text{ r } 1$. Each child gets 6, and 1 is left over.	1
16	7	$45 \div 6 = 7 \text{ r } 3$. 7 whole pieces, 3 cm is left (round down).	1

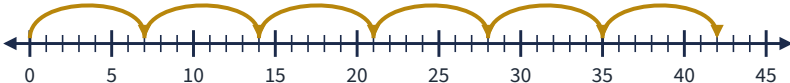
B

Practise *answers and working*

/ 20 marks

Q	Answer	Working / sample response	Marks
1	14 minibuses	$\begin{array}{r} 13 \text{ r } 8 \\ 9 \overline{) 125} \\ \underline{9} \\ 35 \\ \underline{27} \\ 8 \end{array}$ $125 \div 9 = 13 \text{ r } 8$. 13 minibuses carry 117 students, but 8 students are left over. They need one more minibus for them, so 14 minibuses. <i>1 mark: 13 r 8.</i> <i>1 mark: 14 minibuses.</i> <i>1 mark: explains the 8 students still need a seat.</i>	3
2	7 each, 3 left over	 $38 \div 5 = 7 \text{ r } 3$. $5 \times 7 = 35$, and $38 - 35 = 3$ left over. <i>1 mark: 7 in each box (drawing or number).</i> <i>1 mark: 3 left over.</i>	2
3	\$23 each, \$2 left	 $94 \div 4 = 23 \text{ r } 2$. Each friend gets \$23 ($4 \times 23 = 92$) and \$2 is left over. <i>1 mark: \$23 each.</i> <i>1 mark: \$2 left over.</i>	2

Division with Remainders · WA5MNACN3

Q	Answer	Working / sample response	Marks																				
4	See table	<table border="1"> <thead> <tr> <th>Number</th><th>÷ by</th><th>Answer</th><th>Rem.</th></tr> </thead> <tbody> <tr> <td>58</td><td>7</td><td>8</td><td>2</td></tr> <tr> <td>100</td><td>8</td><td>12</td><td>4</td></tr> <tr> <td>59</td><td>6</td><td>9</td><td>5</td></tr> <tr> <td>73</td><td>7</td><td>10</td><td>3</td></tr> </tbody> </table> $58 \div 7 = 8 \text{ r } 2$. $100 \div 8 = 12 \text{ r } 4$. $6 \times 9 + 5 = 59$, so $59 \div 6 = 9 \text{ r } 5$. $73 - 3 = 70$ and $70 \div 10 = 7$, so $73 \div 7 = 10 \text{ r } 3$. 3 marks: all four rows. 2 marks: three rows. 1 mark: two rows.	Number	÷ by	Answer	Rem.	58	7	8	2	100	8	12	4	59	6	9	5	73	7	10	3	3
Number	÷ by	Answer	Rem.																				
58	7	8	2																				
100	8	12	4																				
59	6	9	5																				
73	7	10	3																				
5	$27 \div 4$	$27 \div 4 = 6 \text{ r } 3$. $29 \div 5 = 5 \text{ r } 4$, $35 \div 6 = 5 \text{ r } 5$, $40 \div 7 = 5 \text{ r } 5$. 1 mark: circles $27 \div 4$. 1 mark: working shown for at least two options.	2																				
6	a) 22 b) 2	a) $90 \div 4 = 22 \text{ r } 2$, so 22 full cans. b) 2 balls are left, and a can holds 4, so she needs $4 - 2 = 2$ more. 1 mark: 22. 1 mark: 2.	2																				
7	43 bags, 6 left over	$350 \div 8$: $35 \div 8 = 4 \text{ r } 3$, then $30 \div 8 = 3 \text{ r } 6$. 43 full bags, and 6 apples left over. Check: $43 \times 8 + 6 = 350$. 1 mark: 43. 1 mark: 6.	2																				
8	6 jumps, $45 \div 7 = 6 \text{ r } 3$	 Jumps land on 7, 14, 21, 28, 35, 42. 6 jumps reach 42, and $45 - 42 = 3$. So $45 \div 7 = 6 \text{ r } 3$. 1 mark: 6 jumps drawn to 42. 1 mark: $6 \text{ r } 3$.	2																				
9	a) 6 (down) b) 7 (up)	a) $20 \div 3 = 6 \text{ r } 2$. The 2 eggs are not enough for another batch: round down to 6. b) $40 \div 6 = 6 \text{ r } 4$. The 4 guests need a table too: round up to 7. 1 mark: 6, down. 1 mark: 7, up.	2																				

C

Think it through *sample answers and criteria*

/ 10 marks

Q	Answer	Working / sample response	Marks									
1	No, it is 8 r 3	The remainder 8 is bigger than 5, so another group of 5 fits. $43 \div 5 = 8 \text{ r } 3$ ($8 \times 5 = 40$, and 3 left). 1 mark: explains the remainder must be less than 5. 1 mark: 8 r 3.	2									
2	False	If 6 are left over, they make one more group of 6. So the remainder can only be 0, 1, 2, 3, 4 or 5. 1 mark: False. 1 mark: explains that 6 left over makes another group (largest remainder is 5).	2									
3	Always	Always Sometimes Never Odd numbers end in 1, 3, 5, 7 or 9, so they are one more than an even number. Even numbers share into 2 equal groups, so there is always 1 left over, e.g. $15 \div 2 = 7 \text{ r } 1$. 1 mark: Always. 1 mark: explanation (one more than an even number).	2									
4	See table	<table><tr><td></td><td>Remainder 0</td><td>Remainder not 0</td></tr><tr><td>Answer 10 or more</td><td>$48 \div 4$, $77 \div 7$</td><td>$50 \div 4$</td></tr><tr><td>Answer less than 10</td><td>$36 \div 6$</td><td>$38 \div 6$, $30 \div 8$</td></tr></table> $48 \div 4 = 12$ and $77 \div 7 = 11$: answer 10 or more, remainder 0. $50 \div 4 = 12 \text{ r } 2$: answer 10 or more, remainder not 0. $36 \div 6 = 6$: less than 10, remainder 0. $38 \div 6 = 6 \text{ r } 2$ and $30 \div 8 = 3 \text{ r } 6$: less than 10, remainder not 0. 2 marks: all six correct. 1 mark: four or five correct.		Remainder 0	Remainder not 0	Answer 10 or more	$48 \div 4$, $77 \div 7$	$50 \div 4$	Answer less than 10	$36 \div 6$	$38 \div 6$, $30 \div 8$	2
	Remainder 0	Remainder not 0										
Answer 10 or more	$48 \div 4$, $77 \div 7$	$50 \div 4$										
Answer less than 10	$36 \div 6$	$38 \div 6$, $30 \div 8$										
5	e.g. full boxes: 6; boxes needed: 7	Answer 6: 50 eggs are packed in boxes of 8. How many boxes are full? (round down) Answer 7: 50 people ride in vans that hold 8. How many vans are needed? (round up) 1 mark: a story where rounding down gives 6. 1 mark: a story where rounding up gives 7.	2									

D

Challenge *solutions and criteria*

/ 9 marks

Q	Answer	Working / sample response	Marks
1	33 and 53	Remainder 3 when $\div 5$: 33, 38, 43, 48, 53, 58. Of these, remainder 1 when $\div 4$: 33 (8 r 1) and 53 (13 r 1). 38, 43, 48, 58 do not work, so the answers are 33 and 53. <i>1 mark: a correct list for one condition.</i> <i>1 mark: 33.</i> <i>1 mark: 53 (and no wrong answers).</i>	3
2	a) 165 b) 27 r 3	a) $23 \times 7 = 161$, then add the remainder: $161 + 4 = 165$. b) $165 \div 6$: $16 \div 6 = 2 \text{ r } 4$, $45 \div 6 = 7 \text{ r } 3$. So $165 \div 6 = 27 \text{ r } 3$. <i>1 mark: 161 (or 23×7).</i> <i>1 mark: 165.</i> <i>1 mark: 27 r 3.</i>	3
3	a) 26 teams, 2 left b) 2 teams c) 4 more	a) $158 \div 6 = 26 \text{ r } 2$. b) The 2 leftover students join 2 different teams, so 2 teams have 7. c) 2 students are left over, so $6 - 2 = 4$ more are needed for a 27th team ($27 \times 6 = 162 = 158 + 4$). <i>1 mark for each part.</i>	3