

Reasoning and Problem Solving

Step 11: Divide with Remainders

National Curriculum Objectives:

Mathematics Year 5: (5C7b) [Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context](#)

Differentiation:

Questions 1, 4 and 7 (Reasoning)

Developing Decide whether a calculation is correct and explain why when comparing answers with remainders using known division facts from 2, 3 and 5 times tables.

Expected Decide whether a calculation is correct and explain why when comparing answers with remainders using known division facts from 4, 6 and 8 times tables.

Greater Depth Decide whether a calculation is correct and explain why when comparing answers with remainders using known division facts from 7 and 9 times tables.

Questions 2, 5 and 8 (Problem Solving)

Developing Solve word problems using known division facts from 2, 3 and 5 times tables.

Expected Solve word problems using known division facts from 4, 6 and 8 times tables.

Greater Depth Solve word problems using known division facts from 7 and 9 times tables.

Questions 3, 6 and 9 (Problem Solving)

Developing Arrange number cards to create a calculation with a given remainder in the answer using known division facts from 2, 3 and 5 times tables.

Expected Arrange number cards to create a calculation with a given remainder in the answer using known division facts from 4, 6 and 8 times tables.

Greater Depth Arrange number cards to create a calculation with a given remainder in the answer using known division facts from 7 and 9 times tables.

More [Year 5 and Year 6 Multiplication and Division](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

Divide with Remainders

1a. Johnny and Chuan are calculating $1,226 \div 3$.



Johnny

The answer is
408 r2.



Chuan

The answer is
407 r5.

Who is correct?
Explain your reasoning.



5 R

Divide with Remainders

1b. Steph and Kelly are calculating $1,203 \div 2$.



Steph

The answer is
600 r3.



Kelly

The answer is
601 r1.

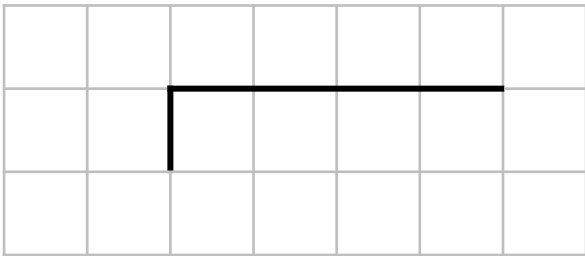
Who is correct?
Explain your reasoning.



5 R

2a. Tennis balls are packed into tubes. One tube holds 5 tennis balls. There are 1,084 tennis balls. How many tubes are needed to hold all the tennis balls?

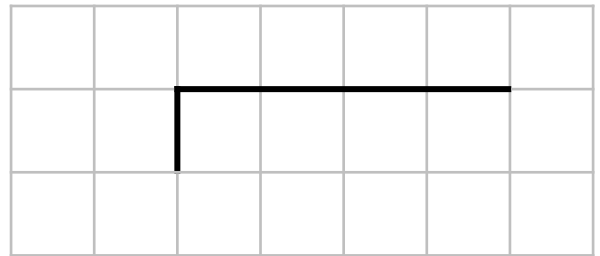
Show your method.



5 PS

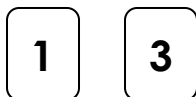
2b. Chocolate bars are packed into packets. One packet holds 3 bars. There are 1,021 bars. How many packets are needed to hold all the bars?

Show your method.

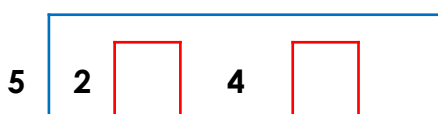


5 PS

3a. Arrange the number cards below to create a calculation which has a remainder of 3. Complete the calculation.

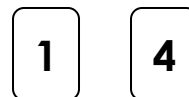


r 3



5 PS

3b. Arrange the number cards below to create a calculation which has a remainder of 1. Complete the calculation.



r 1



5 PS

Divide with Remainders

4a. Sean and Gabriel are calculating $3,987 \div 6$.



The answer is
663 r9.



The answer is
664 r3.

Who is correct?
Explain your reasoning.



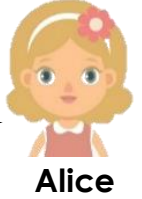
5 R

Divide with Remainders

4b. Hannah and Alice are calculating $4,359 \div 8$.



The answer is
544 r7.



The answer is
543 r15.

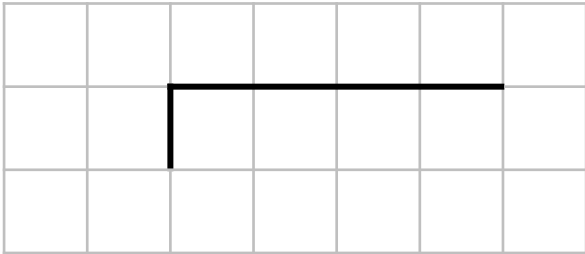
Who is correct?
Explain your reasoning.



5 R

5a. Oranges are packed into nets. One net holds 6 oranges. There are 2,317 oranges. How many nets are needed to hold all the oranges?

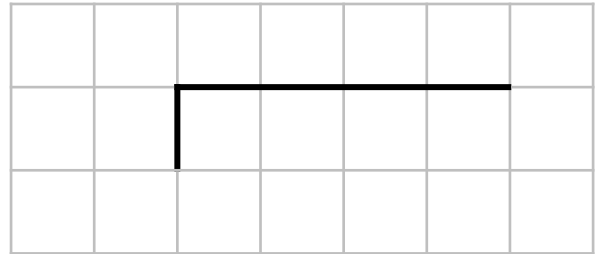
Show your method.



5 PS

5b. Eggs are packed into boxes. One box holds 8 eggs. There are 3,421 eggs. How many boxes are needed to hold all the eggs?

Show your method.



5 PS

6a. Arrange the number cards below to create a calculation which has a remainder of 4. Complete the calculation.



r 4



5 PS

6b. Arrange the number cards below to create a calculation which has a remainder of 7. Complete the calculation.



r 7



5 PS

Divide with Remainders

7a. Cian and Jake are calculating $3,455 \div 7$.



Cian

The answer is
493 r4.



Jake

The answer is
492 r11.

Who is correct?
Explain your reasoning.



5 R

Divide with Remainders

7b. Sinead and Isabel are calculating $4,332 \div 9$.



Sinead

The answer is
480 r12.



Isabel

The answer is
481 r3.

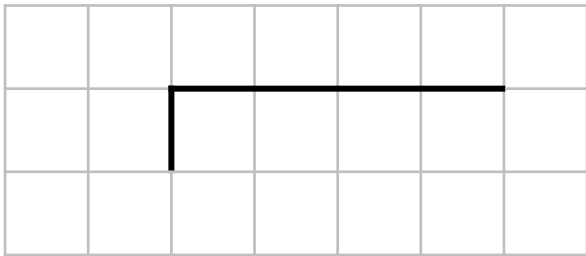
Who is correct?
Explain your reasoning.



5 R

8a. Cupcakes are packed into trays. One tray holds 9 cupcakes. There are 3,559 cupcakes. How many trays are needed to hold all the cupcakes?

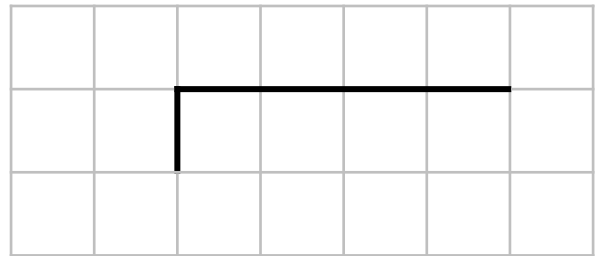
Show your method.



5 PS

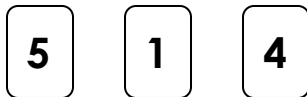
8b. Pears are packed into bags. One bag holds 7 pears. There are 2,012 pears. How many bags are needed to hold all the pears?

Show your method.



5 PS

9a. Arrange the number cards below to create a calculation which has a remainder of 4. Complete the calculation.



r 4



5 PS

9b. Arrange the number cards below to create a calculation which has a remainder of 3. Complete the calculation.



r 3



5 PS

Reasoning and Problem Solving Divide with Remainders

Developing

1a. Johnny is correct. Chuan's remainder is 5 which is higher than the divisor of 3.

2a. $1,084 \div 5 = 216 \text{ r}4$

217 tubes will be needed.

3a. $2,143 \div 5 = 428 \text{ r}3$

Expected

4a. Gabriel is correct. Sean's remainder is 9 which is higher than the divisor of 6.

5a. $2,317 \div 6 = 386 \text{ r}1$

387 nets will be needed.

6a. Various answers, for example:

$2,602 \div 6 = 433 \text{ r}4$; $2,620 \div 6 = 436 \text{ r}4$

$2,206 \div 6 = 367 \text{ r}4$; $2,260 \div 6 = 376 \text{ r}4$

$2,026 \div 6 = 337 \text{ r}4$; $2,062 \div 6 = 343 \text{ r}4$

Greater Depth

7a. Cian is correct. Jake's remainder is 11 which is higher than the divisor of 7.

8a. $3,559 \div 9 = 395 \text{ r}4$

396 trays will be needed.

9a. Various answers, for example:

$5,541 \div 7 = 791 \text{ r}4$; $5,415 \div 7 = 773 \text{ r}4$

Reasoning and Problem Solving Divide with Remainders

Developing

1b. Kelly is correct. Steph's remainder is 3 which is higher than the divisor of 2.

2b. $1,021 \div 3 = 340 \text{ r}1$

341 packets will be needed.

3b. $3,421 \div 5 = 684 \text{ r}1$

Expected

4b. Hannah is correct. Alice's remainder is 9 which is higher than the divisor of 8.

5b. $3,421 \div 8 = 427 \text{ r}5$

428 boxes will be needed.

6b. $3,727 \div 8 = 465 \text{ r}7$

Greater Depth

7b. Isabel is correct. Sinead's remainder is 12 which is higher than the divisor of 9.

8b. $2,012 \div 7 = 287 \text{ r}3$

288 bags will be needed.

9b. Various answers, for example:

$3,153 \div 9 = 350 \text{ r}3$; $3,135 \div 9 = 348 \text{ r}3$

$3,513 \div 9 = 390 \text{ r}3$; $3,531 \div 9 = 392 \text{ r}3$

$3,351 \div 9 = 372 \text{ r}3$; $3,315 \div 9 = 368 \text{ r}3$