

Reasoning and Problem Solving

Step 3: Divide by 3

National Curriculum Objectives:

Mathematics Year 3: (3C6) [Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables](#)

Mathematics Year 3: (3C8) [Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which \$n\$ objects are connected to \$m\$ objects](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Use clues to solve a division problem involving numbers up to 36 (3×12). Includes pictorial support.

Expected Use clues to solve a division problem involving numbers up to 36 (3×12). Includes number line support.

Greater Depth Use multiple clues to solve a division problem involving numbers up to 36 (3×12).

Questions 2, 5 and 8 (Problem Solving)

Developing Use digit cards to complete a calculation involving dividing a number (up to 36) by 3. Includes pictorial support.

Expected Use digit cards to complete a calculation involving dividing a number (up to 36) by 3.

Greater Depth Use digit cards to complete a calculation involving dividing a number (up to 36) by 3, by finding the missing digit card values.

Questions 3, 6 and 9 (Reasoning)

Developing Explain if a statement about dividing a number (up to 36) by 3 is correct. Includes multiple pictorial supports.

Expected Explain if a statement about dividing a number (up to 36) by 3 is correct. Includes pictorial support.

Greater Depth Explain if a statement about dividing a number (up to 36) by 3 is correct by using their knowledge of times tables facts up to 12×3 .

More [Year 3 Multiplication and Division](#) resources.

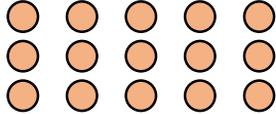
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Divide by 3

1a. Kenneth is thinking of a number.



My number is even. It is less than 15 and a multiple of 3. My number has 2 digits.



What number is Kenneth thinking of?



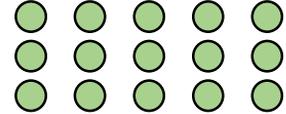
PS

Divide by 3

1b. Haroon is thinking of a number.



My number is odd and is a multiple of 3. It is less than 15, but greater than 5.

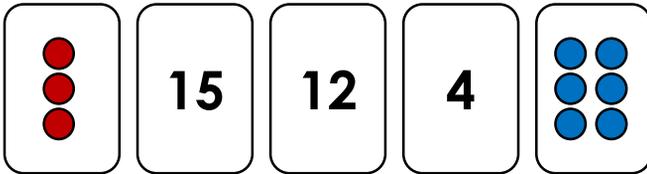


What number is Haroon thinking of?



PS

2a. Choose the digit cards that will complete this number sentence.

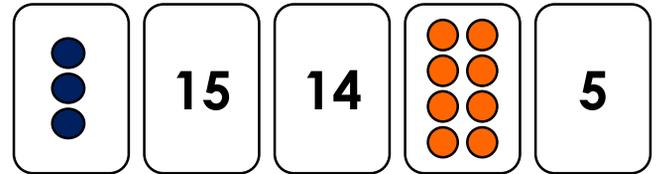


$$\square \div 3 = \square$$



PS

2b. Choose the digit cards that will complete this number sentence.

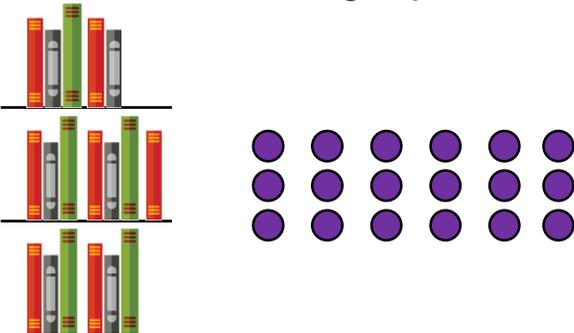


$$\square \div 3 = \square$$



PS

3a. Amina wants to sort her 18 books into equal groups on her bookshelf. She sorts them into the groups below.

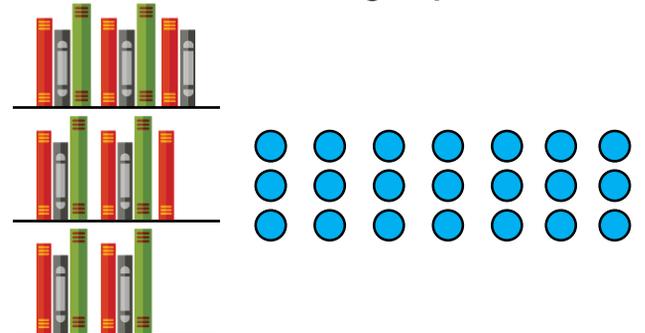


Is she correct? Explain your answer.



R

3b. Sophia wants to sort her 21 books into equal groups on her bookshelf. She sorts them into the groups below.



Is she correct? Explain your answer.



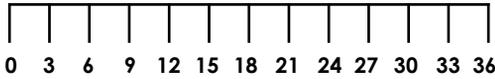
R

Divide by 3

4a. Jaden is thinking of a number.



My number is odd. It is less than 30 and a multiple of 3. My number can also be divided by 5.



What number is Jaden thinking of?



PS

Divide by 3

4b. Harry is thinking of a number.



My number is even and is a multiple of 3. It is the smallest number that can be divided by both 3 and 10.



What number is Harry thinking of?



PS

5a. Choose the digit cards that will complete this number sentence.

3	15	27	30	9
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$$\square \div 3 = \square$$



PS

5b. Choose the digit cards that will complete this number sentence.

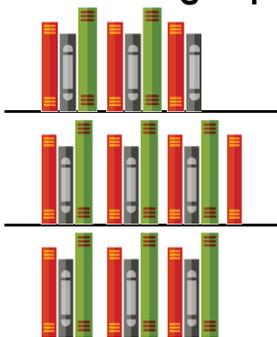
20	24	30	8	12
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$$\square \div 3 = \square$$



PS

6a. Caitlin wants to sort her 27 books into equal groups on her bookshelf. She sorts them into the groups below.

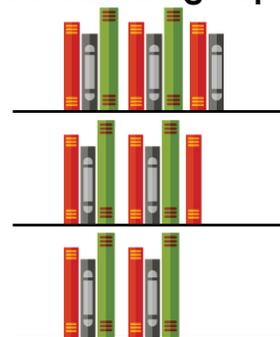


Is she correct? Explain your answer.



R

6b. Anish wants to sort his 21 books into equal groups on his bookshelf. He sorts them into the groups below.



Is he correct? Explain your answer.



R

Divide by 3

7a. Billy is thinking of a number.



My number is odd. It is less than 30 and is a multiple of 3. My number cannot be divided by 5, but it is a multiple of 7.

What number is Billy thinking of?



PS

Divide by 3

7b. Alisa is thinking of a number.



My number is even and is a multiple of 3. It is the smallest number that can be divided by 2, 3, 4 and 6.

What number is Alisa thinking of?



PS

8a. Choose the digit cards that will complete this number sentence by finding the possibilities for '?'.

3	33	?	12	?
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$$\square \div 3 = \square$$

Use facts up to 12 x 3 to help.



PS

8b. Choose the digit cards that will complete this number sentence by finding the possibilities for '?'.

3	?	?	9	8
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$$\square \div 3 = \square$$

Use facts up to 12 x 3 to help.



PS

9a. Fatima wants to sort her 36 books into equal groups on her bookshelf. She sorts them into the groups below.

11 books	11 books	11 books
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Is she correct? Explain your answer. Draw a pictorial representation to show your working.



R

9b. David wants to sort his 27 books into equal groups on his bookshelf. He sorts them into the groups below.

10 books	9 books	8 books
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Is he correct? Explain your answer. Draw a pictorial representation to show your working.



R

Reasoning and Problem Solving Divide by 3

Developing

1a. 12

2a. $12 \div 3 = 4$

3a. She is incorrect because the books have not been divided equally. $18 \div 3 = 6$ so there should be 6 books on each shelf.

Expected

4a. 15

5a. $27 \div 3 = 9$

6a. She is incorrect because the books have not been divided equally. $27 \div 3 = 9$ so there should be 9 books on each shelf.

Greater Depth

7a. 21

8a. Various answers, for example; ? = 36 and 11; $36 \div 3 = 12$ or $33 \div 3 = 11$.

9a. She is incorrect because $36 \div 3 = 12$ not 11, so there should be 12 books on each shelf. Pictorial representation should show 36 divided into 3 equal groups.

Reasoning and Problem Solving Divide by 3

Developing

1b. 9

2b. $15 \div 3 = 5$

3b. She is incorrect because the books have not been divided equally. $21 \div 3 = 7$ so there should be 7 books on each shelf.

Expected

4b. 30

5b. $24 \div 3 = 8$

6b. He is incorrect because the books have not been divided equally. $21 \div 3 = 7$ so there should be 7 books on each shelf.

Greater Depth

7b. 12

8b. Various answers, for example; ? = 27 and 24; $27 \div 3 = 9$ or $24 \div 3 = 8$.

9b. He is incorrect because the books have not been divided equally. $27 \div 3 = 9$ so there should be 9 books on each shelf. Pictorial representation should show 27 divided into 3 equal groups.