

Reasoning and Problem Solving

Step 5: Written Methods

National Curriculum Objectives:

Mathematics Year 4: (4C7) [Multiply two-digit and three-digit numbers by a one-digit number using formal written layout](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Identify the most efficient method to solve a multiplication calculation. Supporting using informal written methods to multiply 2-digits by a 1-digit number. Includes pictorial representations and scaffolding.

Expected Identify the most efficient method to solve a multiplication calculation. Supporting using informal written methods to multiply 2-digits by a 1-digit number. Includes pictorial representations and some incomplete calculations.

Greater Depth Identify the most efficient method to solve a multiplication calculation. Supporting using informal written methods to multiply 2-digits by a 1-digit number. Includes incomplete calculations.

Questions 2, 5 and 8 (Reasoning)

Developing Use digit cards to create a multiplication calculation and solve it using the most efficient method. Supporting using informal written methods to multiply 2-digits by a 1-digit number. Includes pictorial representations and scaffolding.

Expected Use digit cards to create a multiplication calculation and solve it using the most efficient method. Supporting using informal written methods to multiply 2-digits by a 1-digit number. Includes pictorial representations and some incomplete calculations.

Greater Depth Use digit cards to create a multiplication calculation, solve it using the methods given and order the methods from the most efficient to the least efficient method. Supporting using informal written methods to multiply 2-digits by a 1-digit number. Includes incomplete calculations.

Questions 3, 6 and 9 (Reasoning)

Developing Explain whether the multiplication has been calculated correctly. Supporting using informal written methods to multiply 2-digits by a 1-digit number. Includes pictorial representations and scaffolding.

Expected Explain whether the multiplication has been calculated correctly. Supporting using informal written methods to multiply 2-digits by a 1-digit number. Includes pictorial representations and some incomplete calculations.

Greater Depth Explain whether the multiplication has been calculated correctly. Supporting using informal written methods to multiply 2-digits by a 1-digit number. Includes incomplete calculations.

More [Year 4 Multiplication and Division](#) resources.

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

Written Methods

1a. Which of the methods below would be the most efficient way of solving the given calculation?

$$23 \times 4 = \square$$

10 10	1 1 1
10 10	1 1 1
10 10	1 1 1
10 10	1 1 1



Use it to solve the calculation.

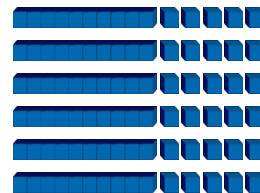
R

Written Methods

1b. Which of the methods below would be the most efficient way of solving the given calculation?

$$15 \times 6 = \square$$

10	1 1 1 1 1
10	1 1 1 1 1
10	1 1 1 1 1
10	1 1 1 1 1
10	1 1 1 1 1
10	1 1 1 1 1



Use it to solve the calculation.

R

2a. Using the digit cards, create a calculation.

$$\square \square \times 3 =$$



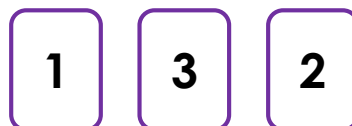
Use the most efficient method to solve it. You could use a part-whole model, a place value grid or a number line.



PS

2b. Using the digit cards, create a calculation.

$$\square \square \times 4 =$$



Use the most efficient method to solve it. You could use a part-whole model, a place value grid or a number line.



PS

3a. Sydney is solving 16×5 .



10	1 1 1 1 1 1
10	1 1 1 1 1 1
10	1 1 1 1 1 1
10	1 1 1 1 1 1
10	1 1 1 1 1 1

She thinks the answer is 90.

Is she correct? Convince me!



R

3b. Asher is solving 19×4 .



10	1 1 1 1 1 1 1 1 1
10	1 1 1 1 1 1 1 1 1
10	1 1 1 1 1 1 1 1 1
10	1 1 1 1 1 1 1 1 1

He thinks the answer is 76.

Is he correct? Convince me!



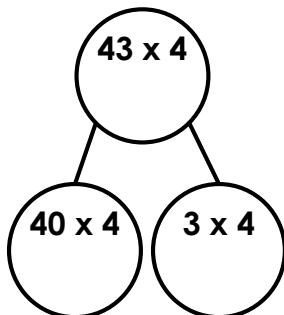
R

Written Methods

4a. Which of the methods below would be the most efficient way of solving the given calculation?

$$43 \times 4 = \square$$

10 10 10 10	1 1 1
10 10 10 10	1 1 1
10 10 10 10	1 1 1
10 10 10 10	1 1 1



Use it to solve the calculation.

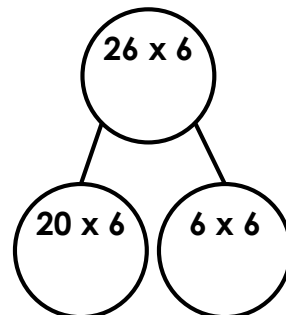
R

Written Methods

4b. Which of the methods below would be the most efficient way of solving the given calculation?

$$26 \times 6 = \square$$

10 10	1 1 1 1 1 1
10 10	1 1 1 1 1 1
10 10	1 1 1 1 1 1
10 10	1 1 1 1 1 1
10 10	1 1 1 1 1 1
10 10	1 1 1 1 1 1

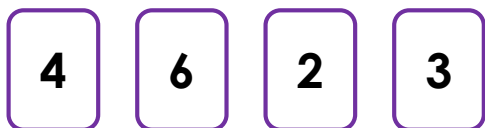


Use it to solve the calculation.

R

5a. Using the digit cards, create a calculation.

$$\square \square \times \square =$$



Use the most efficient method to solve it. You could use a part-whole model, a place value grid or a number line.



PS

5b. Using the digit cards, create a calculation.

$$\square \square \times \square =$$

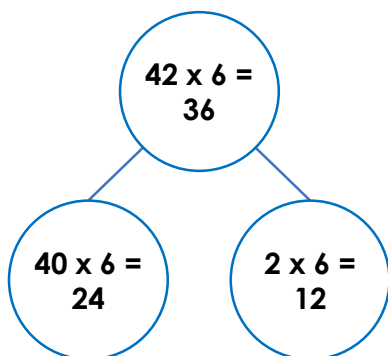


Use the most efficient method to solve it. You could use a part-whole model, a place value grid or a number line.



PS

6a. Julie is solving 42×6 .



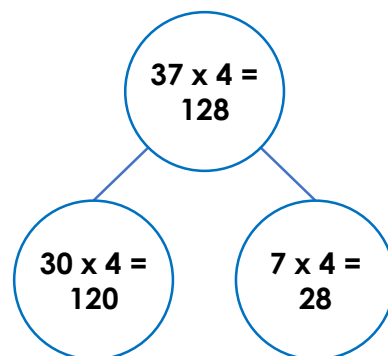
She thinks the answer is 36.

Is she correct? Convince me!



R

6b. Martin is solving 37×4 .



He thinks the answer is 128.

Is he correct? Convince me!

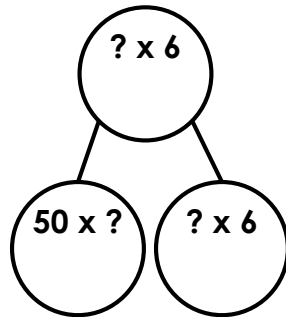
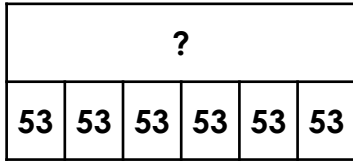


R

Written Methods

7a. Which of the methods below would be the most efficient way of solving the given calculation?

$$53 \times 6 = \square$$



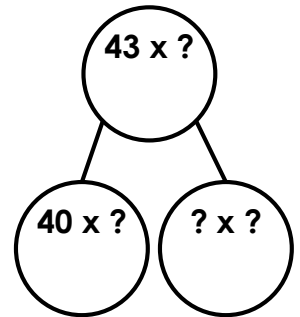
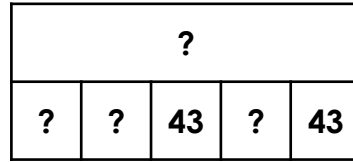
Use it to solve the calculation.

R

Written Methods

7b. Which of the methods below would be the most efficient way of solving the given calculation?

$$43 \times 5 = \square$$

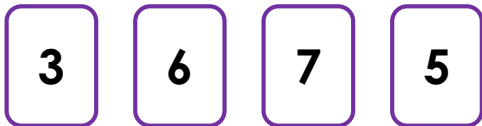


Use it to solve the calculation.

R

8a. Using the digit cards, create a calculation.

$$\square \square \times \square =$$



Solve the calculations using a part-whole model, a place value grid and a number line. Order the methods from most efficient to least efficient.



PS

8b. Using the digit cards, create a calculation.

$$\square \square \times \square =$$



Solve the calculations using a part-whole model, a place value grid and a number line. Order the methods from most efficient to least efficient.



PS

9a. Hilary is solving 23×9 .



She thinks the answer is 209.

Is she correct? Convince me!



R

9b. Seth is solving 46×4 .



He thinks the answer is 184.

Is he correct? Convince me!



R

Reasoning and Problem Solving Written Methods

Developing

- 1a. Either method can be correct as long as the reasoning makes sense, for example: The part-whole model, because you do not have to draw out the counters. $23 \times 4 = 92$
- 2a. Various answers, for example: $21 \times 3 = 63$
- 3a. Sydney is incorrect because $10 \times 5 = 50$ and $6 \times 5 = 30$. $50 + 30 = 80$ not 90.

Expected

- 4a. Either method can be correct as long as the reasoning makes sense, for example: The part-whole model, because you do not have to draw out the counters. $43 \times 4 = 172$
- 5a. Various answers, for example: $24 \times 3 = 72$
- 6a. Julie is incorrect. When multiplying $40 \times 6 = 240$ she has not multiplied 4×6 by 10.

Greater Depth

- 7a. Either method can be correct as long as the reasoning makes sense, for example: The part-whole model, because you do not know the whole yet to complete the bar model. $53 \times 6 = 318$
- 8a. Various answers, for example: $67 \times 5 = 335$. Any order can be correct due to personal preference.
- 9a. Hillary is incorrect because $20 \times 9 = 180$ and $3 \times 9 = 27$. $180 + 27 = 207$.

Reasoning and Problem Solving Written Methods

Developing

- 1b. Either method can be correct as long as the reasoning makes sense, for example: The part-whole model, because you do not have to draw out the counters. $15 \times 6 = 90$
- 2b. Various answers, for example: $23 \times 4 = 92$
- 3b. Asher is correct because $10 \times 4 = 40$ and $9 \times 4 = 36$. $40 + 36 = 76$.

Expected

- 4b. Either method can be correct as long as the reasoning makes sense, for example: The part-whole model, because you do not have to draw out the counters. $26 \times 6 = 156$
- 5b. Various answers, for example: $48 \times 5 = 240$
- 6b. Martin is incorrect. He has multiplied correctly, but not added them correctly. $120 + 28 = 148$ not 128.

Greater Depth

- 7b. Either method can be correct as long as the reasoning makes sense, for example: The part-whole model, because you do not know the whole yet to complete the bar model. $43 \times 5 = 215$
- 8b. Various answers, for example: $38 \times 4 = 152$. Any order can be correct due to personal preference.
- 9b. Seth is correct because $40 \times 4 = 160$ and $6 \times 4 = 24$. $160 + 24 = 184$.