Reasoning and Problem Solving
Step 5: Multiply 4 Digits by 2 Digits

National Curriculum Objectives:

Mathematics Year 5: (5C6a) Multiply and divide numbers mentally drawing upon known facts
Mathematics Year 5: (5C7a) Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers

Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing Find a number from given clues by multiplying 4-digit numbers by 2-digit numbers using fully expanded method. No exchanges.
Expected Find a number from given clues by multiplying 4-digit numbers by 2-digit numbers using formal multiplication method. Includes exchanges.
Greater Depth Find a number from given clues by multiplying 4-digit numbers by 2-digit numbers using formal multiplication method. Includes exchanges and multiple solutions.

Questions 2, 5 and 8 (Problem Solving)
Developing Use multiplication to find missing numbers to one part of a calculation to reach a given answer. No exchanges.
Expected Use multiplication to find missing numbers to one part of a calculation to reach a given answer. Includes exchanges.
Greater Depth Use multiplication to find missing numbers in two parts of a calculation to reach a given answer. Includes exchanges.

Questions 3, 6 and 9 (Reasoning)
Developing Explain whether a word problem is correct by multiplying 4-digits by 2-digits. No exchanges.
Expected Explain whether a word problem is correct by multiplying 4-digits by 2-digits. Includes exchanges.
Greater Depth Explain whether a word problem is correct by multiplying 4-digits by 2-digits. Numbers in the questions are incomplete and calculations include exchanges.

More Year 5 Multiplication and Division resources.

Did you like this resource? Don't forget to review it on our website.

Multiply 4 Digits by 2 Digits

1a. Dennis is thinking of a number. He gives the following clues:

It is an even 5-digit number.
It is the result of multiplying a 4-digit number by 12.
The 4-digit number has a digit sum of 5.

What is the smallest number Dennis could be thinking of?

D

PS

2a. Use two of the digit cards to create a multiplication that equals approximately 25,000.

2,124 x _____

1	2	3	4

D

PS

3a. A sofa costs £1,213.

12 families buy a sofa each. The furniture salesperson says the total cost is £15,556.

Is he correct? Explain your answer.

D

R

Multiply 4 Digits by 2 Digits

1b. Jen is thinking of a number. She gives the following clues:

It is an odd 5-digit number.
It is the result of multiplying a 4-digit number by 21.
The 4-digit number has a digit sum of 4.

What is the smallest number Jen could be thinking of?

D

PS

2b. Use two of the digit cards to create a multiplication that equals approximately 16,000.

1,213 x _____

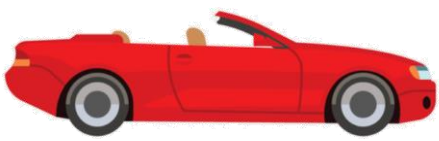
1	2	3	4

D

PS

3b. A car costs £3,422.

11 families buy a car each. The car salesperson says the total cost is £37,642.



Is she correct? Explain your answer.

D

R

Multiply 4 Digits by 2 Digits

4a. Saaim is thinking of a number. He gives the following clues:

It is an even 5-digit number.
It is the result of multiplying a 4-digit number by 23.
The 4-digit number has a digit sum of 7.

What is the largest number Saaim could be thinking of?

E PS

Multiply 4 Digits by 2 Digits

4b. Chloe is thinking of a number. She gives the following clues:

It is an odd 6-digit number.
It is the result of multiplying a 4-digit number by 51.
The 4-digit number has a digit sum of 4.

What is the smallest number Chloe could be thinking of?

E PS

5a. Use two of the digit cards to create a multiplication that equals approximately 17,000.

1,422 x _____

1	2	3	4

E PS

5b. Use two of the digit cards to create a multiplication that equals approximately 100,000.

2,112 x _____

3	4	5	7

E PS

6a. A TV package costs £1,419 per house.

23 houses on Brook Street buy this package. The TV salesperson says the total cost is £32,607.

Is he correct? Explain your answer.

E R

6b. A new kitchen costs £3,006 per house.

13 houses on Mitchell Terrace buy a new kitchen. The builder says the total cost is £39,068.

Is she correct? Explain your answer.

E R

Multiply 4 Digits by 2 Digits

7a. Honey is thinking of a number. She gives the following clues:

It is an odd 6-digit number between 200,000 and 220,000.
It is the result of multiplying a 4-digit number by 51.
The 4-digit number has a digit sum of 7.

Which numbers could Honey be thinking of?

GD

PS

7b. Igor is thinking of a number. He gives the following clues:

It is an even 6-digit number between 112,000 and 113,000.
It is the result of multiplying a 4-digit number by 22.
The 4-digit number has a digit sum of 8.

Which numbers could Igor be thinking of?

GD

PS

8a. Use three of the digit cards to create a multiplication that equals approximately 482,000.

7,19 ☐ x ☐☐

5	6	7	8

GD

PS

8b. Use three of the digit cards to create a multiplication that equals approximately 145,000.

2,13 ☐ x ☐☐

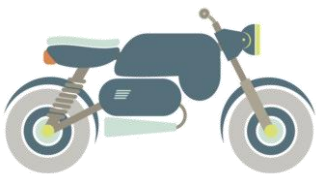
1	3	6	8

GD

PS

9a. A motorbike costs £6,259.

The motorbike sales person says he would need to sell between 80 and 85 motorbikes to reach his target of £600,000.



Is he correct? Explain your answer.

GD

R

9b. Holidays to New Zealand cost £4,729.

The travel company says they would need to sell between 40 and 45 flights to reach their target of £200,000.

Are they correct? Explain your answer?

GD

R

Reasoning and Problem Solving
Multiply 4 Digits by 2 Digits

Developing

1a. The smallest number Dennis could be thinking of is 1,004. 1,004 x 12 = 12,048 so Dennis's 5-digit number is 12,048.

2a. 2,124 x 12 = 25,488

3a. No, he is not correct because £1,213 x 12 = £14,556.

Expected

4a. The largest number Saaim could be thinking of is 4,300. 4,300 x 23 = 98,900 so Saaim's 5-digit number is 98,900.

5a. 1,422 x 12 = 17,064

6a. No, he is not correct because £1,419 x 23 = £32,637.

Greater Depth

7a. 4,201 x 51 = 214,251;
4,021 x 51 = 205,071; 4,111 x 51 = 209,661;
4,003 x 51 = 204,153

8a. 7,198 x 67 = 482,266;
7,195 x 67 = 482,065

9a. No, he is not correct because £6,259 x 85 = £532,015 which does not reach the target. He would need to sell at least 96 motorbikes.

Reasoning and Problem Solving
Multiply 4 Digits by 2 Digits

Developing

1b. The smallest number Jen could be thinking of is 1,003. 1,003 x 21 = 21,063 so Jen's 5-digit number is 21,063.

2b. 1,213 x 13 = 15,769

3b. Yes, she is correct because £3,422 x 11 = £37,642.

Expected

4b. The smallest number Chloe could be thinking of is 2,011. 2011 x 51 = 102,561 so Chloe's 6-digit number is 102,561.

5b. 2,112 x 47 = 99,264

6b. No, she is not correct because £3,006 x 13 = £39,078.

Greater Depth

7b. 5,102 x 22 = 112,244;
5,111 x 22 = 112,442; 5,120 x 22 = 112,640

8b. 2,131 x 68 = 144,908;
2,133 x 68 = 145,044

9b. No they are not correct because they would need to sell at least 43 flights to reach the target as £4,729 x 43 = £203,347.