

WA4MNAFA1

Understanding number

Core + Challenge

Finding Factor Pairs

I can find all the factor pairs of a whole number.

Name: _____ Date: _____ Score: / 53

Key idea

Factor pairs: two whole numbers that multiply together to give a target number. To find all factor pairs of a number, test each whole number starting from 1, checking whether it divides evenly.

E.g. the factor pairs of **12** are 1×12 , 2×6 , 3×4 .

A Fluency *practise the skill*

/16 marks

Find all the factor pairs of each number.

1. 12 _____

2. 18 _____

3. 20 _____

4. 24 _____

5. 16 _____

6. 28 _____

7. 30 _____

8. 36 _____

9. 15 _____

10. 21 _____

11. 32 _____

12. 40 _____

13. 27 _____

14. 45 _____

15. 50 _____

16. 48 _____

B Core *apply the skill to problems*

/21 marks

1

Find all the factor pairs of 24. How many factor pairs does 24 have?

[3 marks]

Answer: _____

2

A teacher wants to arrange 36 desks into equal rows. (a) List three different ways the desks could be arranged into equal rows (give the factor pairs). (b) Which arrangement would best fit a classroom that is wider than it is deep? Explain.

[4 marks]

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Answer: _____

3

Find all the factor pairs of 40.

[3 marks]

Answer: _____

4

A gardener has 45 plants to place in equal rows. (a) Find all the factor pairs of 45. (b) If the gardener wants more than 3 rows but fewer than 10, how many plants should be in each row, and how many rows is that?

[4 marks]

Answer: _____

5

Find all the factor pairs of 32.

[3 marks]

Answer: _____

6

A box of 48 chocolates needs to be shared evenly among a group of people with none left over. (a) Find all the factor pairs of 48. (b) If each person is to receive more than 6 chocolates but fewer than 12, how many chocolates should each person get, and how many people would that be?

[4 marks]

Answer: _____

C**Reasoning** *explain, justify and check***/9 marks****1**

Explain what a 'factor pair' is, using 20 as an example.

[2 marks]

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2

A student says that to find all factor pairs of a number, you only need to check whole numbers up to its square root. Explain why this works, using 36 as an example.

[2 marks]

3

Explain why every whole number has at least one factor pair (1 and itself).

[2 marks]

4

A student says that a number with more factor pairs is always bigger than a number with fewer factor pairs. Is this true? Explain, comparing 36 (which has 5 factor pairs) with 50 (which has 3 factor pairs).

[3 marks]**D****Challenge** *multi-step and problem-solving***/7 marks**

1

Two factor pairs of a number are 3×8 and 4×6 . What is the number, and what is another factor pair it has (other than $1 \times n$)?

[2 marks]

Answer: _____

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2

A number between 30 and 40 has exactly 2 factor pairs, meaning it is prime. Find this number (there may be more than one answer).

[2 marks]

Answer: _____

3

The factor pairs of two numbers both include $1 \times n$ and $2 \times (n \div 2)$. If one number is 18 and the other is 26, list all the factor pairs of each number, and state which number has more factor pairs.

[3 marks]

Answer: _____

How did I go?

Fluency ____/16 Core ____/21 Reasoning ____/9 Challenge ____/7 **Total ____/53**

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