# Operations D - Plan

### Aims:

To know that some operations are commutative and understand what that means.

### Activities:

True or False?

4 × 9 = 9 × 4

12 ÷ 3 = 3 ÷ 12

4 + 7 = 7 + 4

8 – 5 = 5 – 8

13 × 19 = 19 × 13

162 ÷ 8 = 8 ÷ 162

241 + 372 = 372 + 24

81 – 52 = 52 – 81

What can you say about multiplication and addition, but not about division and subtraction?

Class notes

### Aims:

To use the commutative property simplify calculations

### Activities:

Examples:

Calculate 57 + 89 + 43 efficiently

Show that 25 × 37 × 4 = 3700

Questions:

Show that

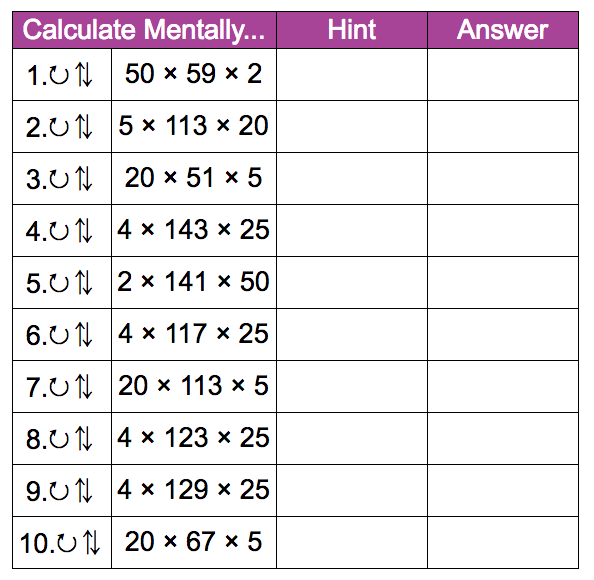
1. 23 + 84 + 77 = 184
2. 5 × 137 × 2 = 1370

Calculate, showing your use of the commutative property.

1. 188 + 374 + 12
2. 4 × 82 × 25
3. 25 × (9 + 389 + 91) × 40
4. 24 + 5 × 74 × 20 + 76

From <http://mathsbot.com/starters/fluentCalcs>

Do these quickly in your head



### Aims:

To know that some operations are associative and understand what that means

### Activities:

True or False?

(2 × 3) × 5 = 2 × (3 × 5)

(12 ÷ 6) ÷ 2 = 12 ÷ (6 ÷ 2)

(7 + 4) + 6 = 7 + (4 + 6)

(8 – 5) – 2 = 8 – (5– 2)

(4 × 9) × 15 = 4 × (9 × 15)

(24 ÷ 6) ÷ 2 = 24 ÷ (6 ÷ 2)

(37 + 24) + 16 = 37 + (24 + 16)

(81 – 53) – 21 = 81 – (53– 21)

What can you say about multiplication and addition, but not about division and subtraction?

Class notes

### Aims:

To use the associative property to complete calculations in the simplest possible way

### Activities:

Examples:

(73 × 5) × 2

Show that

784 + 49 + 51 = 884

Questions: Show your use of the associative property in each solution

(789 × 2) × 5 = 7890

275 + 88 + 12 = 375

52 + (48 + 67)

789 × 4 × (150 + 88 + 12)

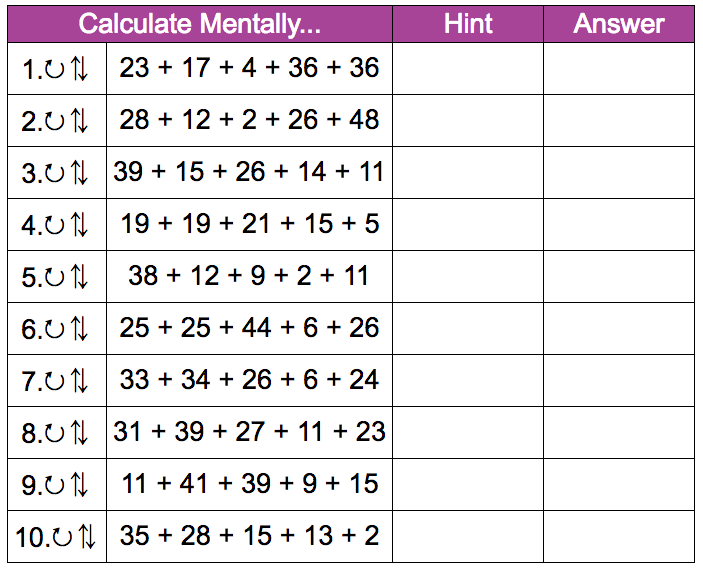
123 × 25 × 4 + 97 + 903

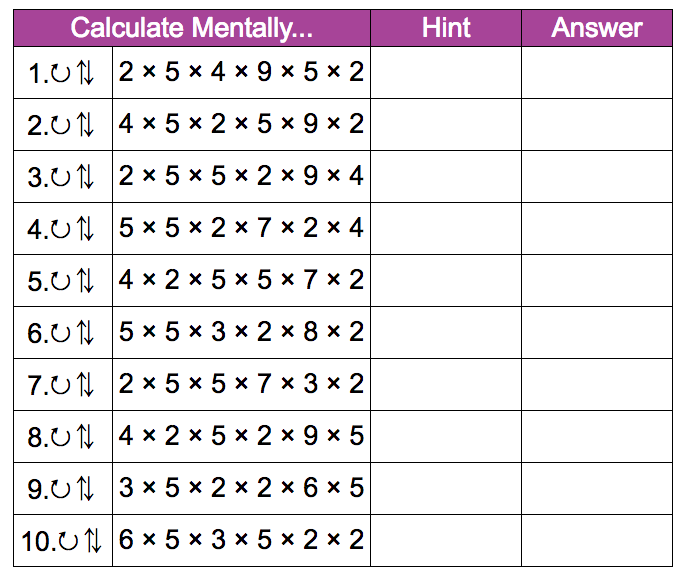
### Aims:

To use the commutative and associative properties to speed up calculations

**Activities:**

From <http://mathsbot.com/starters/fluentCalcs>





789 × 4 × (150 + 88 + 12)

123 × 25 × 4 + 97 + 903

**Assessment:**

is a calculation which exemplifies which property?

True or false? Write an explanation of how you know (without calculating) using one of the words you have learned.

Is this always true? Write an explanation of how you know using one of the words you have learned.

Write down calculations to exemplify the commutative and associative properties.

**Later Assessment:**

When is the statement true?

A Always

B Never

C Only if

D Only if one of or is zero

When is the statement true?

A Always

B Never

C Only if

D Only if is zero

When is the statement true?

A Always

B Never

C Only if

D Only if is zero

When is the statement true?

A Sometimes

B Always

C Never

D Forever

is an example of…

A the commutative property

B the associative property

C the distributive property

D no property. It is false.

is an example of…

A the commutative property

B the associative property

C the distributive property

D no property. It is false.

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