play! ▶ Mathematics | **Grade 4**

Term 3 Summary

- HOW TO USE? -

Option 1: Print out and simply give to your child to study.

Option 2: Ask your child each question and they must answer you verbally.

In some cases, they may need a pen and paper to help explain the answer.

This option is highly recommended!

As a child explains each answer verbally:

- It will help them to commit it to memory. 😊

- You will easily be able to tell if they actually understand it or not.
    - If yes, continue. Yay!
    - If not, the topic must be revised.
    - Look at Term 1 + Term 2 work if necessary.

- PLEASE NOTE: THIS IS A SUMMARY -

- It does not cover all of the work that must be studied.
- It does not replace practicing in your Play! Maths Book (or schoolbook).

CLICK ME

SECTIONS COVERED

1.	2.	3.	4.
Capacity	Common Fractions	Whole Numbers	Addition & Subtraction

5.	6.	7.	8.
2-D Shapes	Data Handling	Multiplication	Number Sentences

Part 1: Capacity

1. What does "capacity" mean?

    Which units do we use to measure it?

    Capacity is the maximum amount of liquid a container can hold.

    Capacity is measured in litres (l) or millilitres (ml).

2. What is the difference between capacity and volume?

    Capacity is the maximum amount of liquid a container can hold.

    This jug has a capacity of 250ml.

    In other words, 250 mℓ of liquid will fill the jug.

    This jug cannot hold more than 250ml.

    Volume refers to the amount of space that a liquid occupies within a container.

    The volume of liquid in the jug is 125ml.

    The jug is not full.
    The volume of liquid inside the jug is less than its capacity.

    Volume is also the amount of space that a solid object, occupies.

    The volume of this cube is 8cm³.

3. How many millilitres are there in 1 litre?

    There are 1 000 millilitres in 1 litre.

4. How many millilitres are there in half a litre?

    There are 500 millilitres in half a litre.

5. What is the approximate capacity of a teacup?

    250 millilitres.

6. What is the approximate capacity of a kettle?

    Approx. 1.8 litres. It is more than 1 and a half litres but less than 2 litres.

7. A jug has a capacity of 1 litre.

    There is already 400ml of water in the jug.

    How much water is needed to fill the jug?

    1 000ml – 400ml = 600ml of water is needed to fill the jug.

Part 2: Common Fractions

1. How do you write "five eighths" in symbol form?

You write 5 over 8 like this: $\dfrac{5}{8}$

The 5 goes above the fraction line and the 8 goes below the fraction line.

2. Explain what a numerator and a denominator is.

1. Study: Fraction $= \dfrac{\text{numerator}}{\text{denominator}}$

For example: In the fraction $\frac{5}{6}$, 5 is the numerator and 6 is the denominator.

Denominator	Numerator
In any fraction, the number written below the fraction line is called the denominator.	The number written above the fraction line is called the numerator.
The denominator tells us into how many equal parts the whole has been divided into.	The numerator tells us how many of the equal parts into which the whole has been divided, are taken.

3. In the fraction "three quarters", what is the denominator and what is the numerator?

Think: $\dfrac{3}{4}$ 4 is the denominator because it is below the fraction line.
It tells us that there are 4 equal parts i.e. quarters.

3 is the numerator because it is above the fraction line.
It tells us that 3 of the 4 equal parts are "taken".

4. Explain why 2 thirds is bigger than 1 third.

"Thirds" means that we divide a whole into 3 equal parts.
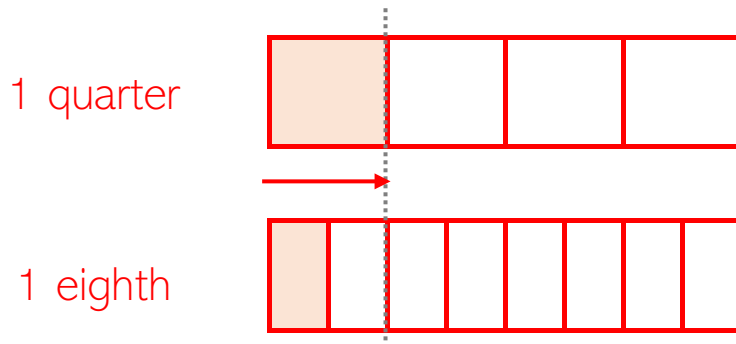
2 thirds means 2 of the 3 equal parts are taken.

1 third means only 1 of the 3 equal parts are taken.

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5. Explain why 1 quarter is bigger than 1 eighth.

Dividing 1 whole into 4 equal parts (quarters) means that the parts are bigger than if the whole is divided into 8 equal parts (eighths).

1 quarter

1 eighth

6. Explain why 1 half is equal to 2 quarters.

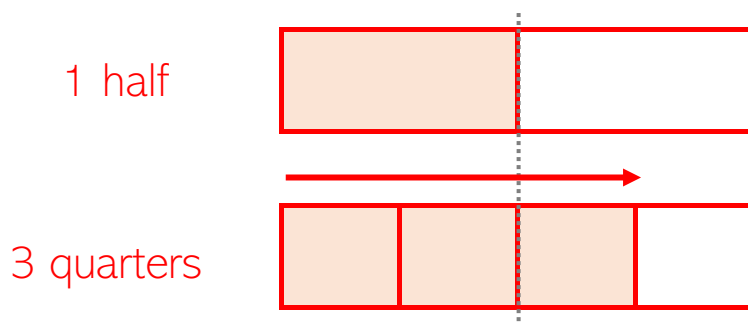If we divide 1 whole into 4 equal parts, we get quarters.

If we shade 2 quarters, we easily see that it is equal to 1 half of the whole.

2 quarters = 1 half

These topics are covered in a **fun + easy** way in our **Play! Maths books.**
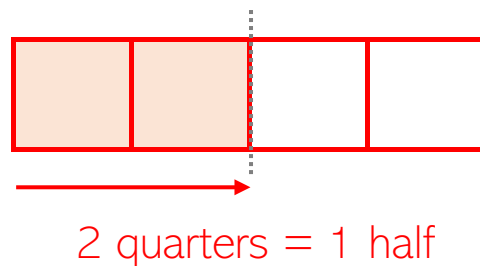
7. Which fraction is bigger, 1 half or 3 quarters?

1 half is equal to 2 quarters.

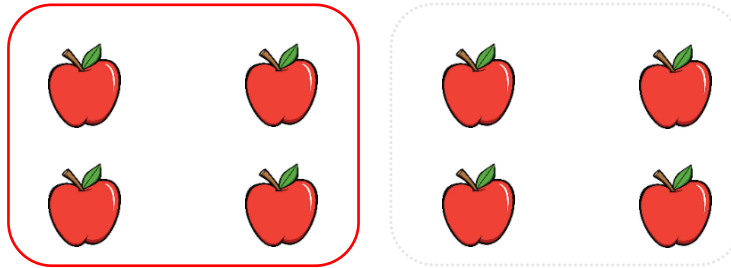Thus: 3 quarters is bigger than 1 half.

1 half

3 quarters

8. a) Explain how you calculate 1 half of a number.

    You divide the number into 2 equal parts and take 1 of the parts.

    b) Calculate 1 half of 8.

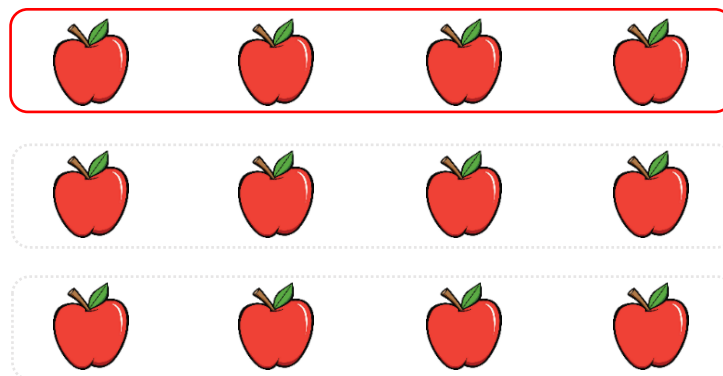   1 half of 8 equals 4 because $8 \div 2 = 4$.

9. a) Explain how you calculate 1 third of a number.

    You divide the number into 3 equal parts and take 1 of the parts.

    b) Calculate 1 third of 12.

    1 third of 12 equals 4 because $12 \div 3 = 4$.
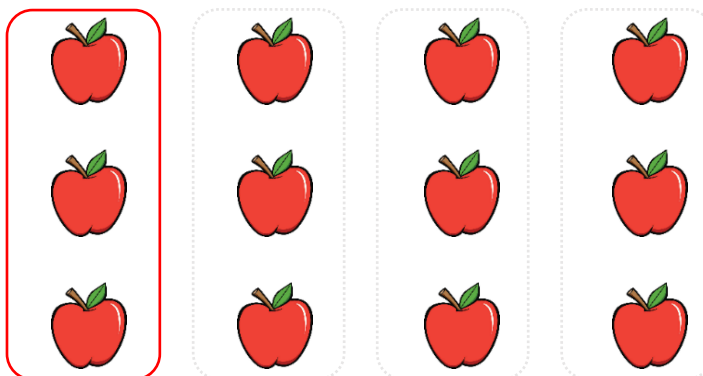
10. a) Explain how you calculate 1 quarter of a number.

    You divide the number into 4 equal parts and take 1 of the parts.

    b) Calculate 1 quarter of 12.

    1 quarter of 12 equals 3 because $12 \div 4 = 3$.

11. 1 third + 1 third = _____ thirds   [1 third plus 1 third equals how many thirds?]

    1 third + 1 third = 2 thirds

12. 3 quarters + 1 quarter = _____   [3 quarters plus 1 quarter is equal to _____ ?]

    3 quarters + 1 quarter = 4 quarters = 1 whole.

13. What is the "rule" when we add fractions?

    When we add fractions, we never add the denominators.

    $\frac{3}{5} + \frac{1}{5} = \frac{4}{5}$.   It is not equal to $\frac{4}{10}$.

14. What is the "rule" when we subtract fractions?

    When we subtract fractions, we never subtract the denominators.

    $\frac{3}{5} - \frac{1}{5} = \frac{2}{5}$.   It is not equal to $\frac{2}{0}$.

15. 1 whole − 3 eighths = _____   [1 whole minus 3 eighths is equal to _____ ?]

    1 whole = 8 eighths

    8 eighths − 3 eighths = 5 eighths

16. There is $\frac{1}{4}$ kg of flour in a bag which can hold 1kg of flour.
    How much flour, in fraction form, is needed to fill the bag?

        1 whole = 4 quarters

    Thus: 4 quarters − 1 quarter = 3 quarters

    Answer: $\frac{3}{4}$ kg of flour needed to fill the bag.

Part 3: Whole Numbers

1. Say this number in words: **2 875**

   Two thousand eight hundred and seventy-five.

2. The smallest 4-digit number is _____ .

   The smallest 4-digit number is 1 000.

3. The smallest 4-digit number, with four different digits is _____ .

   The smallest 4-digit number, with four different digits is 1 023.

   - The number may not start with "0". 0123 is incorrect because you cannot say it in words like "one thousand and twenty-three".

   - 1 234 is also incorrect because 1 023 is smaller than 1 234.

4. What is meant by "ascending order"?
   Ascending means "going up" from the smallest to the biggest.
   Example: 12, 27, 32, 43 are written in ascending order of size

5. What is meant by "descending order"?
   <u>D</u>escending means "going <u>d</u>own" from the biggest to the smallest.
   Example: 85, 67, 50, 13 are written in descending order of size

6. What is an odd number?

   Odd numbers end in 1, 3, 5, 7, or 9.

   For example, 4 28<u>5</u> is odd.

7. The 3 odd numbers just before 5 000 are…

   4 999 , 4 997 , 4 995.

8. What is an even number?

    Even numbers end in 0, 2, 4, 6, or 8. For example, 2 854 is even.

9. The largest 4-digit even number is _____ .

    9 999 is the largest 4-digit number but it ends on 9 and is therefore odd.

    9 99<u>8</u> is therefore the largest 4-digit <u>even</u> number.

10. What is meant by the value of a digit in a number?

    Value is how much a digit in a number is worth.

    In 2 875 the value of the: • 2 is 2 000.

                                   • 8 is 800.

                                   • 7 is 70.

                                   • 5 is 5.

11. What is meant by the place value of a digit in a number?

    Place value tells us the position of a digit in a number.

    In other words, it tells us which column (Th, H, T or U) the digit is in.

    In 2 875 the place value of the: • 2 is Th

                                        • 8 is H

                                        • 7 is T

                                        • 5 is U.

12. What does it mean to write a number in expanded form?

    It means that we "split" the Th, H, T and U.

    In expanded form: $2\ 875 = 2\ 000 + 800 + 70 + 5$

                      or $2\ 875 = 2Th + 8H + 7T + 5U$

                      or $2\ 875 = (2 \times 1\ 000) + (8 \times 100) + (7 \times 10) + (5 \times 1)$

13. What does it mean to write a number in short form?

It is the opposite of writing a number in expanded form.

- 2 000 + 400 + 80 + 5 in short form is 2 485.

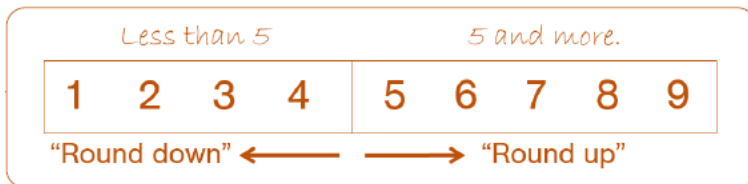Take note of the order of the place value columns → Th H T U.

- 2 000 + 40 + <u>800</u> + 5 in short form is 2 <u>8</u>45.

14. How do you round a number off to the nearest ten? Give two examples.

To round a number off to the nearest 10 means:
"to which 10 is the number closest to?"

We use the unit digit of a number to decide. If it is:

Less than 5	5 and more.
1 2 3 4	5 6 7 8 9
"Round down" ←	→ "Round up"

Examples:

a)   26 lies between 20 and <u>30</u>. The units digit is a 6.
Thus we "round up": 26 rounded off to the nearest ten is <u>30</u>.

b)   73 lies between <u>70</u> and 80. The units digit is a 3.
Thus we "round down": 73 rounded off to the nearest ten is <u>70</u>.

15. Explain how you round 549 off to the nearest hundred.

5<mark>4</mark>9 lies between 500 and 600.

- We use the tens digit to decide whether to "round up" or "round down".
- The tens digit is a <mark>4</mark>. Thus we "round down".
- Therefore, 549 rounded off to the nearest hundred is 500.

16. Explain how you round the number 2 744 off to the nearest thousand.

2 <mark>7</mark>44 lies between 2 000 and 3 000.

- We use the hundreds digit to decide whether to "round up" or "round down".
- The hundreds digit is a <mark>7</mark>. Thus we "round up".
- Therefore, 2 744 rounded off to the nearest thousand is 3 000.

Part 4: Addition and Subtraction

1. What happens when you add zero to a number.

    It stays exactly the same. For example, $5 + 0 = 5$.

2. $7 + 5$ is equal to…

    $7 + 5 = 12$.

3. $800 + 200$ is equal to…

    $800 + 200 = 1\ 000$.

4. What does the word "sum" mean in Maths?

    When two numbers are added, the answer is called the sum.

    Example: The sum of 4 and 5 is 9 because $4 + 5 = 9$.

KEEP IT UP!

5. What is the sum of 18 and 25?

    $18 + 25 = 43$

6. Can two numbers be added in any order? Explain your answer with an example.

    Yes! $4 + 5 = 9$ and $5 + 4 = 9$. Therefore $4 + 5 = 5 + 4$.

7. What does the word "difference" mean in Maths?

    When one number is subtracted from another number,

    the answer is called the difference.

    Examples:

    - The difference between 9 and 5 is 4: $9 - 5 = 4$
    - 8 is subtracted from 20 means $20 - 8$ and not $8 - 20$.

    In Grade 4, think "big number – small number".

    Good to remember: $5 - 2 \neq 2 - 5$

    Two numbers cannot be subtracted in any order.

8. Why can two numbers not be subtracted in any order?

    For example, why is 9 − 4 not equal to 4 − 9?

    If I have 9 sweets and eat 4 of them, I will have 5 sweets left: 9 − 4 = 5.

    However, if I only have 4 sweets, I **cannot** eat 9 sweets because there are not enough sweets. Therefore 9 − 4 is not equal to 4 − 9.

    - The answer to 4 − 9 will be negative.
    - We will learn about negative numbers in Gr 7.

9. What is the difference between 30 and 100?

    In Grade 4, think "big number − small number".

    The difference is 100 − 30 = 70.

10. What is the sum of 1 200 and 1 500?

    1 200 + 1 500 = 2 700

11. Work out the answer to 1 000 − 350 mentally. Explain your steps.

    350 is equal to 300 + 50.

    So subtract 300 and then 50 in two steps…

    Step 1: 1 000 − 300 = 700.

    Step 2:   700 −   50 = 650.

    Answer: 1 000 − 350 = 650.

12. How much must be added to R750 to get R1 000?

    R250 must be added because

    R1 000 − R750 = R250.

These topics are covered in a
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way in our
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Part 5: 2-D Shapes

1. Does a triangle have more sides or more angles.

   Neither – it has 3 sides and 3 angles.

2. Describe a polygon by naming 3 characteristics.

   1. A polygon is a 2-D shape.

   2. It only has straight sides.

   3. The shape must be "closed".

3. What is a quadrilateral? Give examples of shapes that are quadrilaterals.

   A quadrilateral is a polygon with 4 straight sides.

   Examples of "special" quadrilaterals are squares and rectangles.

4. Is a circle a polygon? Give a reason.

   No – it has one curved side.

5. Is a cube a polygon? Give a reason.

   No – a cube is 3-D. Polygons are 2-D shapes.

6. What is a right angle?

   When one arm stands "straight up" on another arm and makes a square corner, a right angle is formed between the arms.

2. Study:

This is a square corner.

The angle between the two sides is called a **right angle**.

This is **not** a square corner.

The angle between the two sides is smaller than a right angle.

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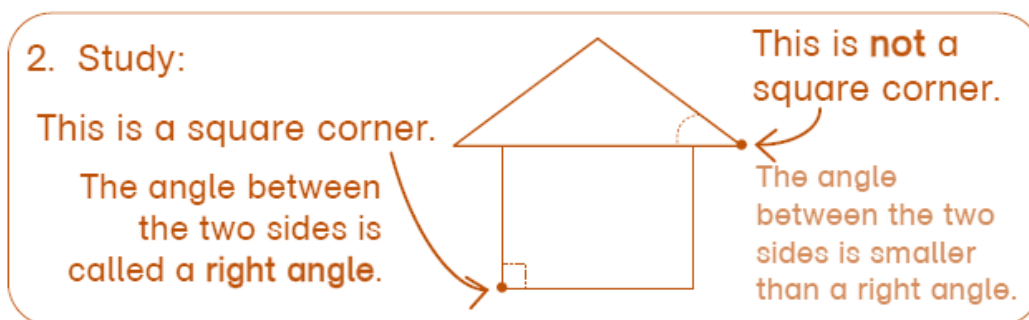
7. Describe a square in as much detail as possible.

   A square has: a) 4 <u>equal</u> straight sides.

                      b) 4 right angles.
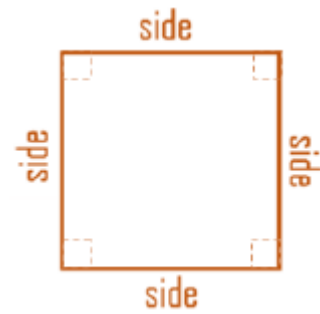
8. How many sides does a pentagon have?

   A pentagon has 5 sides.

9. What is the name of a polygon with 6 sides?

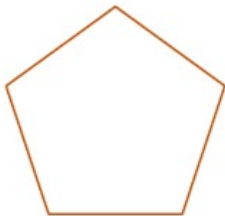   A hexagon.

10. What makes a polygon regular?

   What is a regular polygon?

   a)   All sides have the <u>same</u> length.

   b)   All angles are <u>equal</u> in size.
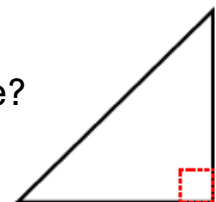
   For example:

Regular pentagon
5 equal sides   Irregular pentagon
                        5 sides

11. Describe the difference between squares and rectangles.

   Squares have 4 <u>equal</u> sides.

   Rectangles have 2 equal lengths and 2 equal widths.

12. A triangle can never have a right angle. Is this true or false?

   False. A triangle can have 1 right angle.

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Part 6: Data Handling

1. What is data?

Data is any information that is collected.

It is gathered by observation, questioning or measurement.

Data is usually organised in graphs or charts for analysis.

2. What is a bar graph?

A bar graph uses bars to represent data. The bars do not touch one another.

3. What are tally marks. How do you write them?

Tally marks are a method for grouping numbers in 5s: ╫╫

- ╫╫ || marks mean an item has been counted 7 times.
- ╫╫ ╫╫ ||| marks mean an item has been counted 13 times.

**4. Why is a key so important when reading a pictograph?**

The key tells you what each picture means.

For example, in the pictograph below the key tells us that each picture represents **3 learners**.

If you don't read this, you will get all the questions relating to the pictograph wrong.

The following pictograph shows the favourite fruit of a group of Grade 4 learners.

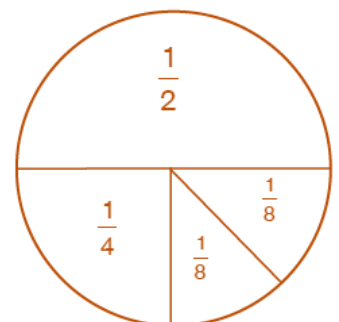| Favourite fruit	Number of learners
Apple	🍒 🍒 🍒
Banana	🍒 🍒 🍒 🍒
Kiwi	🍒 🍒
Peach	🍒 🍒 🍒 🍒 🍒

KEY: 🍒 = 3 learners

A pictograph is data represented in picture form.

It is important to take note of the **key**.

5. What is a pie chart?

A pie chart represents data in a circle form.

- The whole circle represents all of the data.
- The fractional parts show the number of people or objects involved in the survey.

Part 7: Multiplication

1. What happens when you multiply a number by 1?

   It stays exactly the same. For example, $5 \times 1 = 5$.

2. What happens when you multiply a number by 10?

   It becomes 10 times bigger. For example, $5 \times 10 = 50$.

   It does not mean that we "add zero to the number"!
   Adding 0 to 5 means this: $5 + 0 = 5$.

3. 7×4 is equal to…

   $7 \times 4 = 28$.

4. 80×6 is equal to…

   $8 \times 6 = 48$ therefore $80 \times 6 = 480$.

5. Anna has R15. John has twice as much money as Anna.

   How much money does John have?

   Twice as much as R15 $=$ R15 $\times$ 2 $=$ R30. [Think R15 + R15]

6. What does the word "product" mean in Maths?

   When two numbers are multiplied, the answer is called the product.

   Examples:

   - The product of 2 and 3 is 6 because $2 \times 3 = 6$.
   - The product of 8 and 10 is 80 because $8 \times 10 = 80$.

7. What is the product of 12 and 3?

   $12 \times 3 = 36$

8. Can two numbers be multiplied in any order? Explain.

   Yes! Examples: $3 \times 6 = 18$ and $6 \times 3 = 18$ therefore $3 \times 6 = 6 \times 3$.

9. What are multiples?

Multiples are numbers that you get when multiplying
a number by 1, 2, 3, 4 etc…

Multiples of a number start with the number itself and get bigger…

Examples:

- The first five multiples of <u>3</u> are <u>3</u> , 6 , 9 , 12 , 15.

  This is because $1 \times 3 = 3$, $2 \times 3 = 6$, $3 \times 3 = 9$, $4 \times 3 = 12$, $5 \times 3 = 15$

- The first five multiples of <u>4</u> are <u>4</u> , 8 , 12 , 16 , 20.

  This is because $1 \times 4 = 4$, $2 \times 4 = 8$, $3 \times 4 = 12$, $4 \times 4 = 16$, $5 \times 4 = 20$

10. What are the first 5 multiples of 5?

    Start at 5 and count in 5s: 5 , 10 , 15 , 20 , 25.

11. Explain what factors are.

Factors of a number are numbers that fit an exact number of times into the number. Think "<u>F</u>actors <u>F</u>it in".

For example, the factors of 12 are 1 , 2 , 3 , 4 , 6 , 12.

- Factors come in pairs → 1 × 12, 2 × 6 and 3 × 4.

- The first factor pair of every number is 1 and the number itself.

  Don't confuse this with multiples of 12.
  Mutliples of 12 start at 12 and get bigger: 12, 24, 36, 48 etc.

12. What are the factors of 18?

    Always write factors in pairs so you don't miss any.
    Start with 1 and 18 and fill the rest of the pair(s) in:

    The factors of 18 are 1 , 2 , 3 , 6 , 9 , 18.

13. What is the 3rd multiple of 18?

    $3 \times 18 = \underline{54}$ or count in 18s: 18 , 36 , <u>54</u>.

14. When a certain number is multiplied by 8 the answer is 24.

    What is the number?

    ___ × 8 = 24.   The number is 3 because 3 × 8 = 24

15. What is the product of 30 and 10?

    30 × 10 = 300

16. What is the product of 40 and 20?

    40 × 20 = 800   Think 4 × 10 × 2 × 10 = 800

17. What is the product of 11 and 12?

    It is helpful to learn your 12 times tables.

    11 × 12 = 132

    Think: 10 × 12 = 120 thus 11 × 12 = 120 + 12 = 132.

KEEP IT UP!

Part 8: Number Sentences

1. Can 3 numbers be grouped and added in any order? Give an example.

   Yes.   (5 + 2) + 3 = 7 + 3 = 10   Brackets mean "do me separately".

               and 5 + (2 + 3) = 5 + 5 = 10

2. Can 3 numbers be grouped and subtracted in any order? Give an example.

   No!   (10 − 4) − 3 = 6 − 3 = 3

              and 10 − (4 − 3) = 10 − 1 = 9

3. Can 3 numbers be grouped and multiplied in any order? Give an example.

   Yes.   (5 × 2) × 3 = 10 × 3 = 30

               and 5 × (2 × 3) = 5 × 6 = 30

4. Can 3 numbers be grouped and divided in any order? Give an example.

   No!   (32 ÷ 8) ÷ 4 = 4 ÷ 4 = 1

              and 32 ÷ (8 ÷ 4) = 32 ÷ 2 = 16