

SUBJECT: Maths

UNIT:

Year 8 Number & Data

SANDHILL VIEW

EST. 1953



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Examples

5, 9, 9, 9, 11, 12, 13, 15, 16

Averages

$$\text{Mean} = \frac{5 + 9 + 9 + 9 + 11 + 12 + 13 + 15 + 16}{9} = \frac{99}{9} = 11$$

Median = 11 (The middle number shown above)

Mode = 9 (This number occurs most often)

Measure of Spread

$$\text{Range} = 16 - 5 = 11$$

(A bigger range means the data is more spread out)

Key Concepts

Averages from a Table

We can calculate the mean, mode, median and range when data is presented in tabular form.

The frequency represents how many times that piece of data is in the data set.

The total frequency will be the total amount of data collected

Key Concept

FDP

A **fraction** is a numerical quantity that is not a whole number.

A **decimal** is a number written using a system of counting based on the number 10.

Thousands	Hundreds	Tens	Ones	.	Tenths	Hundredths	Thousandths
8	7	6	5	.	4	3	2

A **percentage** is an amount out of 100.

Key Words

Numerator: How many parts of something we have, the top of a fraction

Denominator: The amount a whole has been split into, the bottom of a fraction.

Key Concept - Fractions

Mixed numbers

These are made up of a whole number and a fraction.

When multiplying – multiply the numerators, multiply the denominators

$$\frac{2}{3} \times \frac{5}{6} = \frac{2 \times 5}{3 \times 6}$$

$$\frac{10}{18} = \frac{5}{9}$$

$$4\frac{3}{5}$$

$$= \frac{4 \times 5 + 3}{5}$$

$$= \frac{23}{5}$$

When dividing – use KFC (Keep, Flip, Change)

$$\frac{2}{3} \div \frac{5}{6} = \frac{2}{3} \times \frac{6}{5}$$

$$\frac{12}{15} = \frac{4}{5}$$

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Year 8 Algebra

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Key Concept

Types of Sequence

Sequence as pictures:



Linear sequence:

4, 7, 10, 13, 16, ...

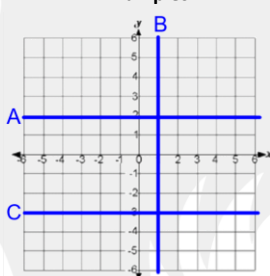
+3 +3 +3 +3

Fibonacci sequence:

(add the previous two terms)

1, 1, 2, 3, 5, 8, ...

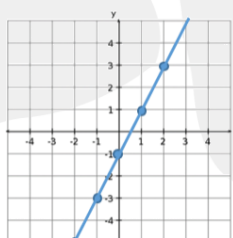
Examples



A: $y = 2$ B: $x = 1$
C: $y = -3$ D: $x = -1$

Draw the graph of $y = 2x - 1$

x	-2	-1	0	1	2
y	-5	-3	-1	1	3



Notice this graph has a gradient of 2 and a y-intercept of -1.

Key Concepts

Graphs

When plotting graphs, we must appreciate the link between the coordinate and the variable.

For this, we use substitution

If $a = 5$ and $b = 2$

$a + b =$	$5 + 2 = 7$
$a - b =$	$5 - 2 = 3$
$3a =$	$3 \times 5 = 15$
$ab =$	$5 \times 2 = 10$
$a^2 =$	$5^2 = 25$

Key Words

Linear: A sequence that has a term to term rule with a common difference. When graphed, is a straight line

Equation: A mathematical statement that shows that two expressions are equal.

Gradient: This describes the steepness of the line.

y-intercept: Where the graph crosses the y-axis.