

Shapes & Properties

Square: all angles = 90°
all sides equal

Rectangle: Opposite sides equal
all angles = 90°

Rhombus: All sides equal
Opp. angles equal

Parallelogram: Opp. sides equal
Opp. angles equal

Trapezium: 1 pair of parallel sides only

Circle: Radius, Diameter

Angles

acute 0-90°

right-angle 90°

obtuse 90-180°

reflex 180-360°

Corresponding angles are equal

Alternate angles are equal

vertically opp. angles are equal

Probability

It measures chance & uses a scale from 0 to 1

Probability = $\frac{\text{No. times X occurs}}{\text{Total No. of outcomes}}$

Example: In a bag are 8 balls
3 red, 2, green and 3 blue

$P(\text{red}) = \frac{3}{8}$
 $P(\text{blue or red}) = \frac{6}{8}$
 $P(\text{black}) = 0$
 $P(\text{red or blue or green}) = \frac{8}{8} = 1$

8 sections to represent the balls

split scale into

Bar Graph (also called frequency graphs)

Frequency (total)

axis should have a scale

Averages

Mean = add all values up how many there are

Median = middle value when in size order

Mode = most frequent / popular value

Range = Highest - Lowest Value

FOUNDATION FACTS & FORMULA

Sum, plus, add, total

take away, difference, differ, subtract

multiply, of, product

divide, split, share

Factors: Numbers that divide into a value or numbers that make that value

24 → factors are 1x24, 2x12, 3x8, 4x6

Time table answers: multiples of 6 are 6, 12, 18, 24, 30, 36, ...

Patterns: odd (end in 1, 3, 5, 7, 9), even (end in 0, 2, 4, 6, 8)

Square: $N \times N = N^2$
Cube: $N \times N \times N = N^3$
1, 8, 27, 64, 125, ...

Algebra: Collecting like terms (simplifying)

$4p + 2q + 2pq - p + 5q$

Solving Equations: $x - 11 = 12$
reverse the action

Expanding Brackets: $5a - 9 = 6$
means you multiply

Sequences: $3n + 4$ write down the first 3 terms
 $3(1) + 4 = 7$
 $3(2) + 4 = 10$
 $3(3) + 4 = 13$

Indices: $n^3 \times n^5 = n^{3+5} = n^8$
 $n^4 \div n^3 = n^{4-3} = n^1$
 $4^3 = 4 \times 4 \times 4 = 64$
 $2^5 = 2 \times 2 \times 2 \times 2 \times 2 = 32$
 $7^0 = 1$

Difference: $2n + 4$ go back one position to find what

Perimeter, Area + Volume

Perimeter = + all side lengths

Area = $\frac{1}{2} \times B \times H$

Area = πr^2

Volume = $L \times W \times H$

Volume = 3 dimensional

Example: Find 50

units → mm, cm, m, km

Area = 2 dimensional

Area = $L \times W$

Area = $\frac{1}{2} \times B \times H$

Area = πr^2

Volume = $L \times W \times H$

Volume = $\frac{1}{2} \times B \times H \times L$

Volume = $\pi r^2 \times H$

cross-section

1 = 0.5 = 50%

$\frac{1}{4} = 0.25 = 25\%$

$\frac{3}{4} = 0.75 = 75\%$

$\frac{1}{5} = 0.2 = 20\%$

$\frac{1}{10} = 0.1 = 10\%$

$\frac{1}{3} = 0.3 = 33\frac{1}{3}\%$

$\frac{4}{3} = 1\frac{1}{3}$ = 4 whole & 2/3 part

4 whole + 2/3 part

Fraction / Decimal / Percentage

HTU Millions

HTU Thousands

HTU Hundreds

HTU Tens

HTU Units

HTU Tenths

HTU Hundredths

HTU Thousandths

HTU Ten Thousandths

HTU Hundred Thousandths

HTU Millionths

HTU Billionths

HTU Trillionths

HTU Quadrillionths

HTU Sextillionths

HTU Octillionths

HTU Decillionths

HTU Undecillionths

HTU Duodecillionths

HTU Tredecillionths

HTU Quattuordecillionths

HTU Quindecillionths

HTU Sexdecillionths

Metric + Imperial

1000mg = 1g

1000g = 1kg

1000kg = 1t

10ml = 1cl

100cl = 1L

1000ml = 1L

1000cm³ = 1L

1000m = 1km

1000g = 1kg

1000kg = 1t

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