recognise integers as positive or negative whole numbers, including zero	
work out the answer to a calculation given the answer to a related calculation	
multiply and divide integers, limited to 3-digit by 2-digit calculations	
multiply and divide decimals, limited to multiplying by a single digit integer, for example 0.6 × 3 or 0.8 ÷ 2 or 0.32 × 5 or limited to multiplying or dividing by a decimal to one significant figure, for example 0.84 × 0.2 or 6.5 ÷ 0.5	
interpret a remainder from a division problem	
recall all positive number complements to 100	
recall all multiplication facts to 10 × 10 and use them to derive the corresponding division facts	
add, subtract, multiply and divide using commutative, associative and distributive laws	
understand and use inverse operations	
use brackets and the hierarchy of operations	
solve problems set in words; for example, formulae given in words	
perform money calculations, writing answers using the correct notation	
round numbers to the nearest whole number, 10, 100 or 1000	
round to one, two or three decimal places	
round to one significant figure	
write in ascending order positive or negative numbers given as fractions, including improper fractions, decimals or integers	
identify multiples, factors and prime numbers from lists of numbers	
write out lists of multiples and factors to identify common multiples or common factors of two or more integers	
write a number as the product of its prime factors and use formal and informal methods for identifying highest common factors (HCF) and lowest common multiples (LCM); abbreviations will not be used in examinations	
quote squares of numbers up to 15×15 and the cubes of 1, 2, 3, 4, 5 and 10, also knowing the corresponding roots	
recognise the notation $\sqrt{25}$ and know that when a square root is asked for only the positive value will be required; candidates are expected to know that a square root can be negative	

solve equations such as $x^2 = 25$, giving both the positive and negative roots	
understand the notation and be able to work out the value of squares, cubes and powers of 10	
use the index laws for multiplication and division of integer powers.	
identify equivalent fractions	
write a fraction in its simplest form	
convert mixed numbers and improper fractions	
compare fractions	
add and subtract fractions by writing them with a common denominator	
convert mixed numbers to improper fractions and add and subtract mixed numbers	
convert between fractions and decimals using place value	
identify common recurring decimals	
know how to write decimals using recurring decimal notation	
interpret percentage as the operator ‘so many hundredths of’	
use percentages in real-life situations	
know that fractions, decimals and percentages can be interchanged	
interpret a fraction as a multiplier when solving problems	
use fractions to compare proportions	
convert between fractions, decimals and percentages to find the most appropriate method of calculation in any given question	
calculate a fraction of a quantity	
work out one quantity as a fraction of another quantity	
use fractions to calculate proportions	
understand and use unit fractions as multiplicative inverses	
multiply and divide a fraction by an integer, by a unit fraction and by a general fraction	
understand the meaning of ratio notation	
interpret a ratio as a fraction	

simplify a ratio to its simplest form, $a : b$, where a and b are integers	
write a ratio in the form $1 : n$ or $n : 1$	
interpret a ratio in a way that enables the correct proportion of an amount to be calculated	
use ratio and proportion to solve word problems	
use direct proportion to solve problems	
use notations and symbols correctly	
understand that letter symbols represent definite unknown numbers in equations, defined quantities or variables in formulae, and in functions they define new expressions or quantities by referring to known quantities	
understand phrases such as ‘form an equation’, ‘use a formula’ and ‘write an expression’ when answering a question	
understand that the transformation of algebraic expressions obeys and generalises the rules of generalised arithmetic	
manipulate an expression by collecting like terms	
multiply a single term over a bracket	
write expressions using squares and cubes	
factorise algebraic expressions by taking out common factors	
solve simple linear equations by using inverse operations or by transforming both sides in the same way	
solve simple linear equations with integer coefficients where the unknown appears on one or both sides of the equation or where the equation involves brackets	
set up simple linear equations to solve problems	
use formulae from mathematics and other subjects expressed initially in words and then using letters and symbols	
substitute numbers into a formula	
change the subject of a formula	
know the difference between $< \leq \geq >$	
solve simple linear inequalities in one variable	
represent the solution set of an inequality on a number line, knowing the correct conventions of an open circle for a strict inequality and a closed circle for an included boundary	
use algebraic expressions to support an argument or verify a statement	
generate common integer sequences, including sequences of odd or even integers, squared integers, powers of 2, powers of 10 and triangular numbers	

generate simple sequences derived from diagrams and complete a table of results describing the pattern shown by the diagrams	
work out an expression in terms of n for the nth term of a linear sequence by knowing that the common difference can be used to generate a formula for the nth term	
plot points in all four quadrants	
recognise that equations of the form $y = mx + c$ correspond to straight line graphs in the coordinate plane	
plot graphs of functions in which y is given explicitly in terms of x or implicitly	
complete partially completed tables of values for straight line graphs	
calculate the gradient of a given straight line using the y-step/x-step method	
plot a graph representing a real-life problem from information given in words or in a table or as a formula	
identify the correct equation of a real-life graph from a drawing of the graph	
read from graphs representing real-life situations; for example, the cost of a bill for so many units of gas or working out the number of units for a given cost, and also understand that the intercept of such a graph represents the fixed charge	
draw linear graphs with or without a table of values	
interpret linear graphs representing real-life situations; for example, graphs representing financial situations (e.g. gas, electricity, water, mobile phone bills, council tax) with or without fixed charges, and also understand that the intercept represents the fixed charge or deposit	
plot and interpret distance-time graphs	