GCSE (9-1) Mathematics

New specifications

- Coverage of broader and deeper mathematical content, delivered through a single extended GCSE
- Higher tier will include questions that will stretch the most able
- Foundation tier will focus on core mathematical understanding and skills for all students to master
- A greater focus on problem-solving
- Additional requirements to provide clear mathematical arguments

Changes to teaching and learning

- GCSE assessment objectives are based on the aims of KS3 and KS4 Programme of Study: fluency, reasoning and problem solving.
- A shift in content from Higher to Foundation tier.
- Learning and memorising formulae, e.g. area of a trapezium and volume of a prism (no longer provided on formulae sheets).
- More assessments – there will now be three examinations over the summer session.

Content

- Entire body of content outlined by the Department for Education's *Mathematics GCSE subject content and assessment objectives document*, published in November 2013

- **There is more content at both Foundation and Higher Tiers**

- Content domains:

	F	H
• Number	25%	15%
• Algebra	20%	30%
• Ratio, proportion, rates of change	25%	20%
• Geometry	15%	20%
• Probability and statistics	15%	15%

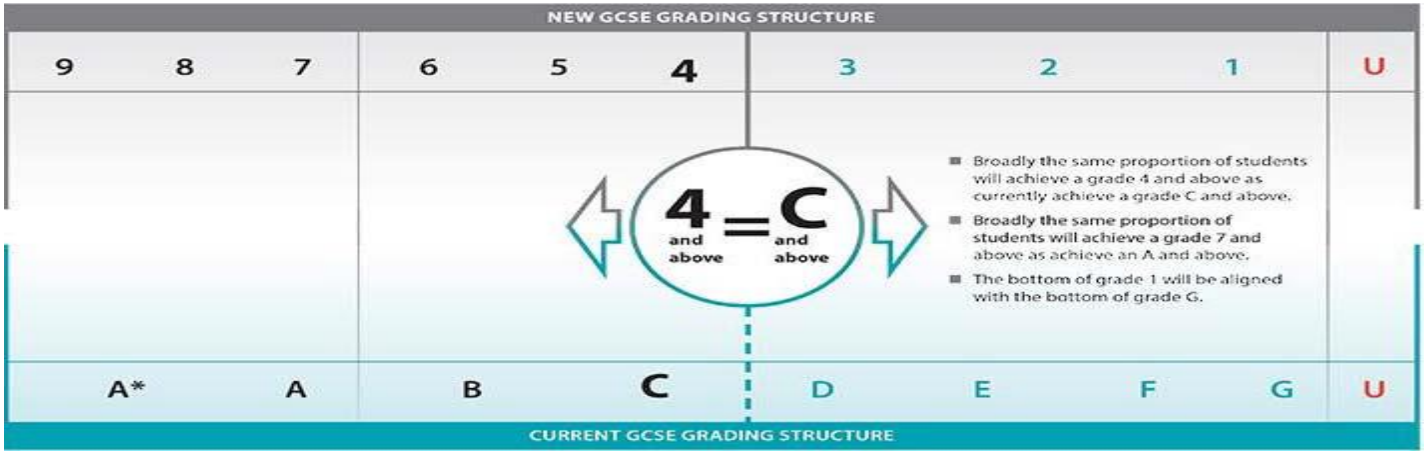
New specifications

- Greater assessment time (4½ hours)
- Three papers, 80 marks each
- 33.3% non-calculator
- 240 marks in all
- Fewer formulae available in examinations

Structure and features

Three equally-weighted written examination papers at either Foundation tier or Higher tier. Paper 1 is the only non-calculator paper. Calculator assisted assessment has been increased from 50% to 66.6%.

9-1 New Grading



- Broadly the same proportion of students will achieve a **grade 4** and above as currently achieve a **grade C** and above.
- Broadly the same proportion of students will achieve a **grade 7** and above as currently achieve an **A** and above.
- The bottom of **grade 1** will be aligned with the bottom of **grade G**.

Changes to assessment: grading

Foundation papers now start at, and reach, a higher level.

The marks on **legacy** Foundation papers are allocated like this:

50%	25%	25%
Targeted at F/G	Targeted at E	Targeted at D/C

In the **new** Foundation papers marks will be allocated like this:

Bottom of 1 aligned with bottom of G

Bottom two thirds of C marks

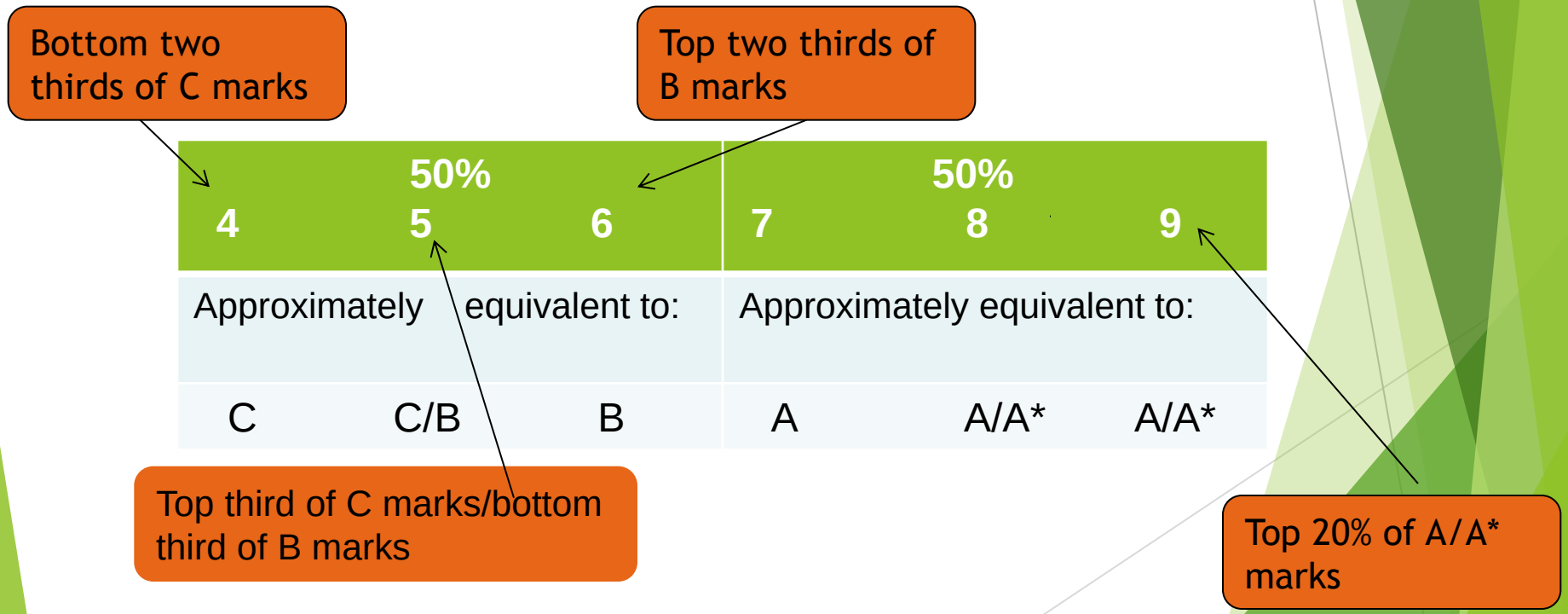
Top third of C marks/bottom third of B marks

50%			50%		
1	2	lower 3	Upper 3	4	5
Approximately equivalent to:			Approximately equivalent to:		
G/F	E	D	D+	C	C/B

Changes to assessment: grading

Higher papers now start at a higher level than the legacy GCSE, which started at a grade D. The new higher tier will cover 6 grades instead of 5, allowing for more differentiation at the top end of the grades. Previously 25% of questions were targeted at A/A*, but now 50% of questions in each paper are targeted at the equivalent grades 7-9.

In the **new Higher** papers marks will be allocated like this:

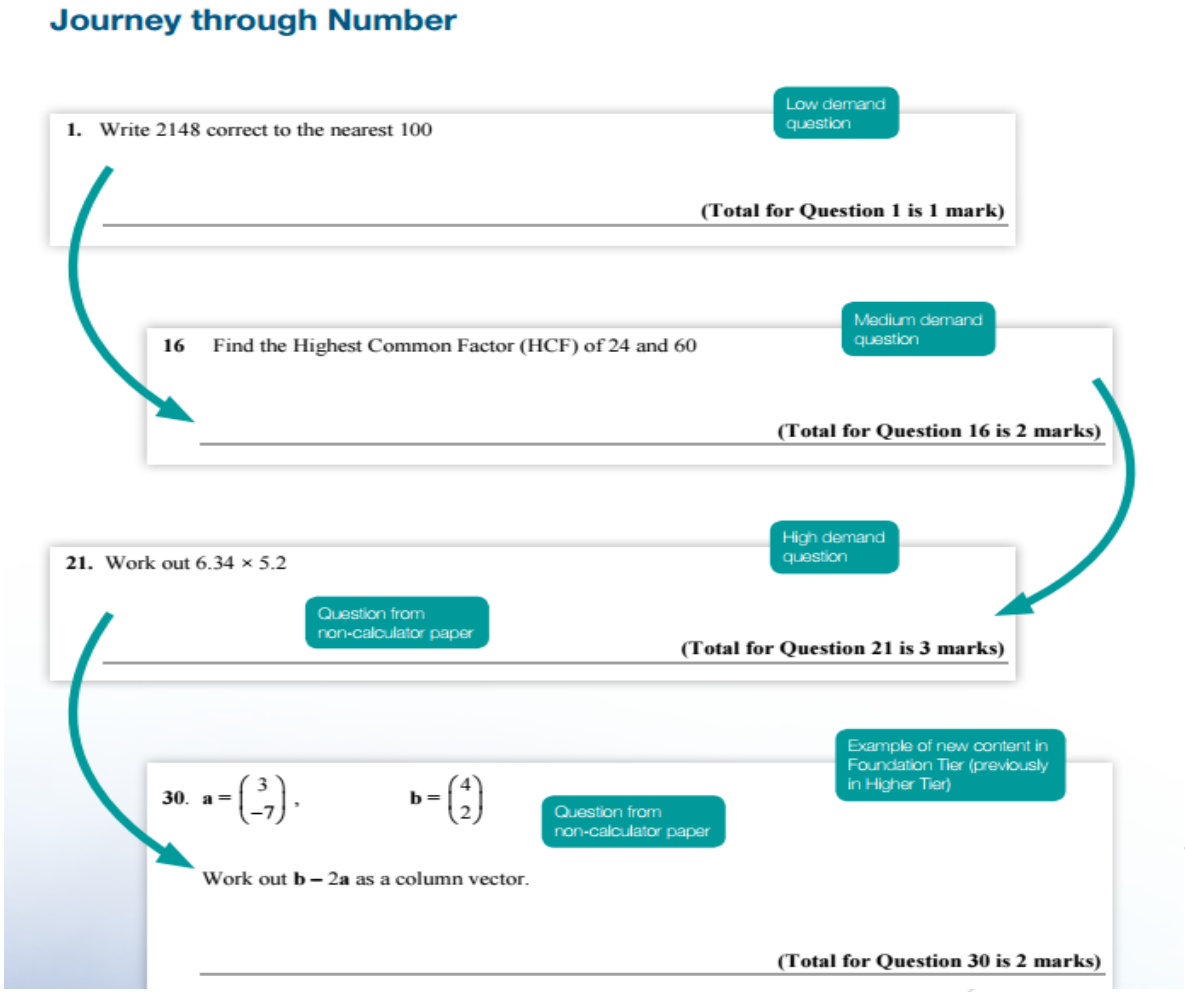


Progression of demand

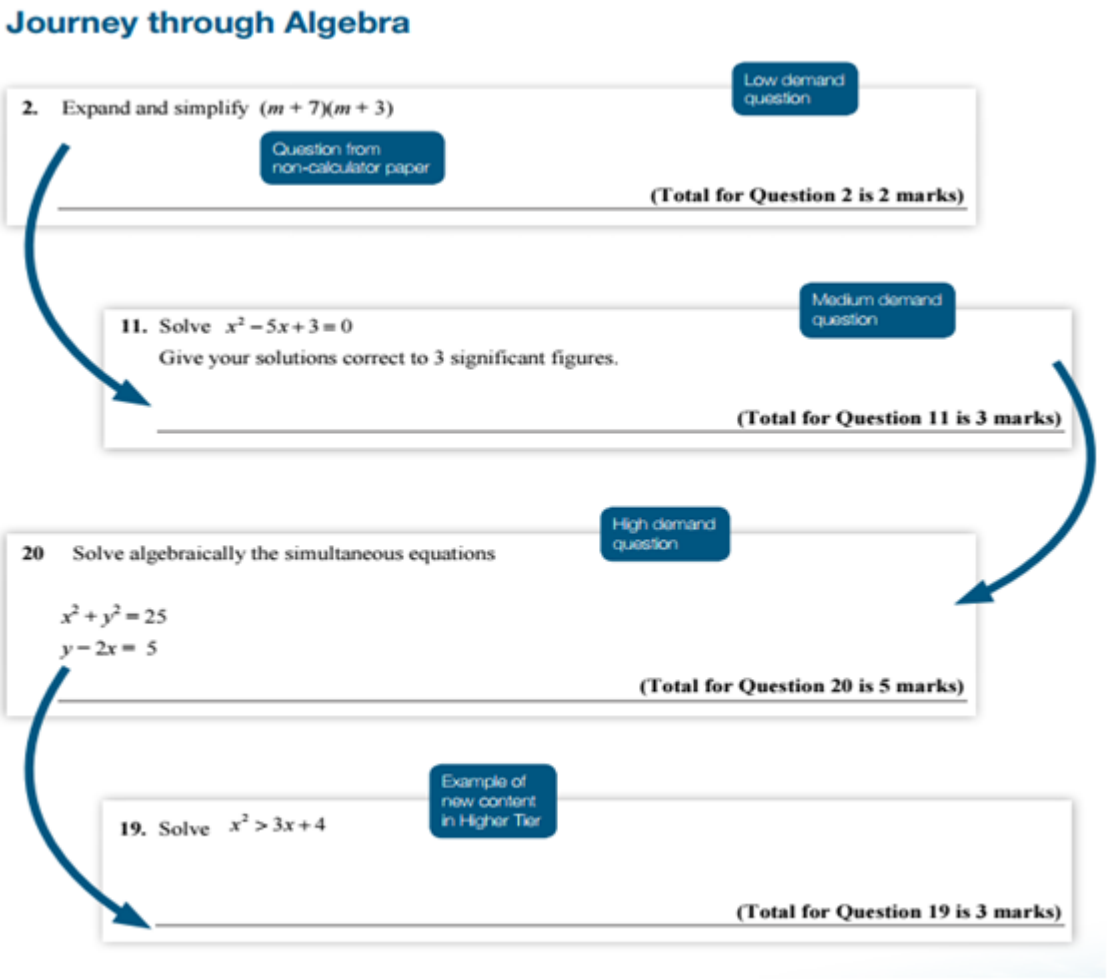
- All papers begin with questions that target lower grades (to provide a gentle start to assessment).
- The level of demand gradually increases throughout the paper.
- Questions that target upper grades are towards the end of the paper.
- Level of demand also increases within some questions (to increase accessibility throughout the paper).

Assessment - Foundation papers

Foundation papers are designed to be accessible to all learners working towards grades 1-5 through gradual ramping of demand.

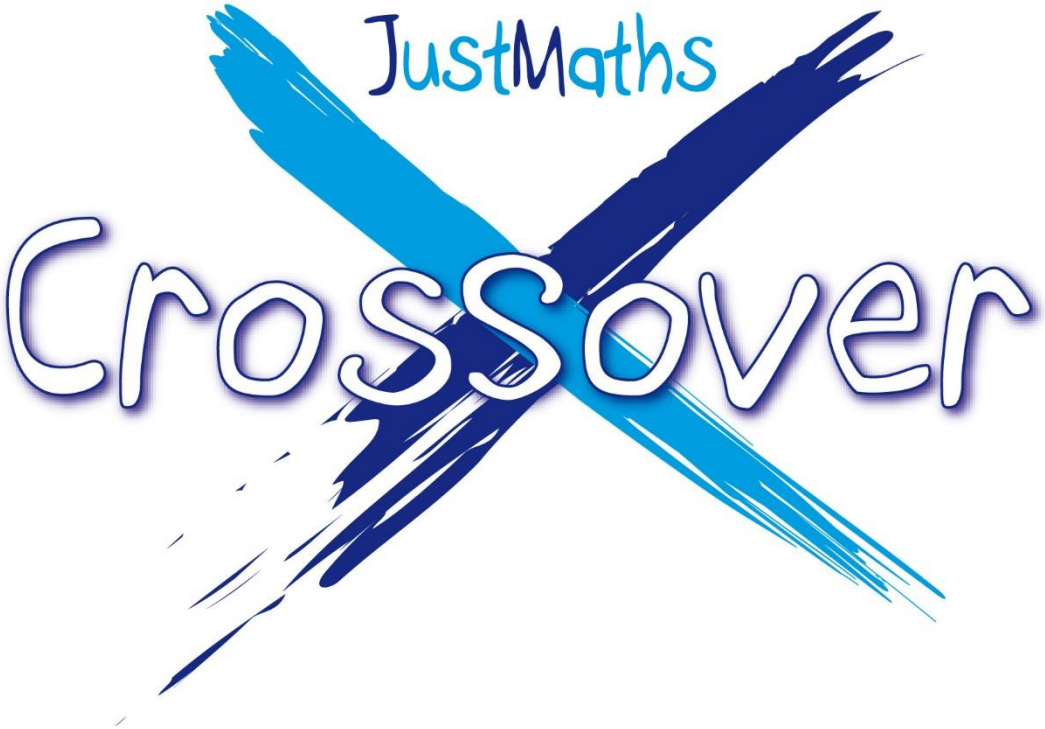


Assessment - Higher papers



Assessment–overlapping questions

- Between 25% and 30% overlapping questions (Grades 4 and 5)



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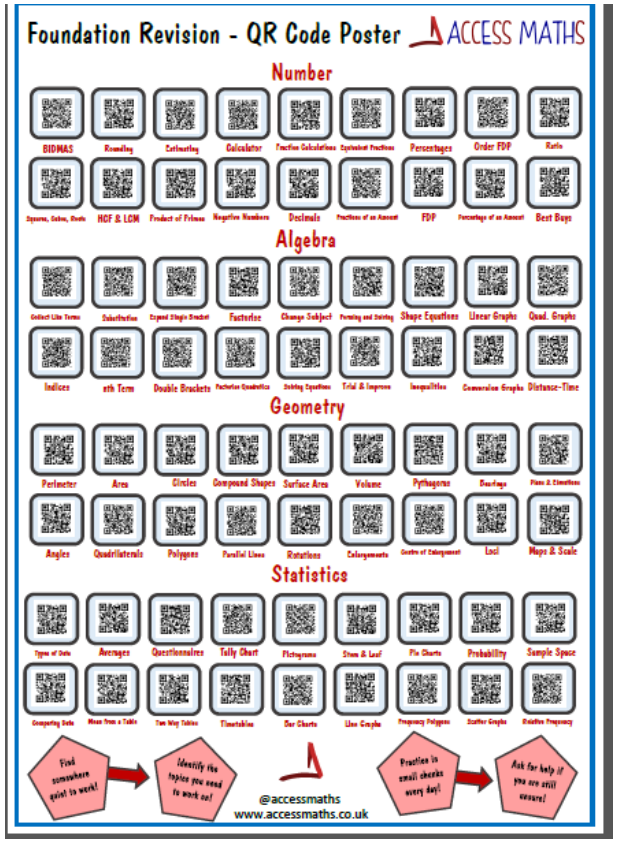
Revision


Foundation Revision - QR Code Poster
ACCESS MATHS
Number
BIDMAS
Rounding
Estimating
Calculator
Fractions Calculations
Equivalent Fractions
Percentages
Order FDP
Ratio
Square, Cube, Roots
HCF & LCM
Product of Primes
Negative Numbers
Decimals
Fractions of an Amount
FDP
Percentage of an Amount
Best Buys
Algebra
Collect Like Terms
Substitution
Expand Single Bracket
Factorise
Change Subject
Forming and Solving
Shape Equations
Linear Graphs
Quad. Graphs
Indices
nth Term
Double Brackets
Factorise Quadratics
Solving Equations
Trial & Improve
Inequalities
Conversion Graphs
Distance-Time
Geometry
Perimeter
Area
Circles
Compound Shapes
Surface Area
Volume
Pythagoras
Bearings
Plans & Elevations
Angles
Quadrilaterals
Polygons
Parallel Lines
Rotations
Enlargements
Centre of Enlargement
Loci
Maps & Scale
Statistics
Types of Data
Averages
Questionnaires
Tally Chart
Pictograms
Stem & Leaf
Pie Charts
Probability
Sample Space
Comparing Data
Mean from a Table
Two Way Tables
Timetables
Bar Charts
Line Graphs
Frequency Polygons
Scatter Graphs
Relative Frequency
Find somewhere quiet to work!
Identify the topics you need to work on!
Practise in small chunks every day!
Ask for help if you are still unsure!
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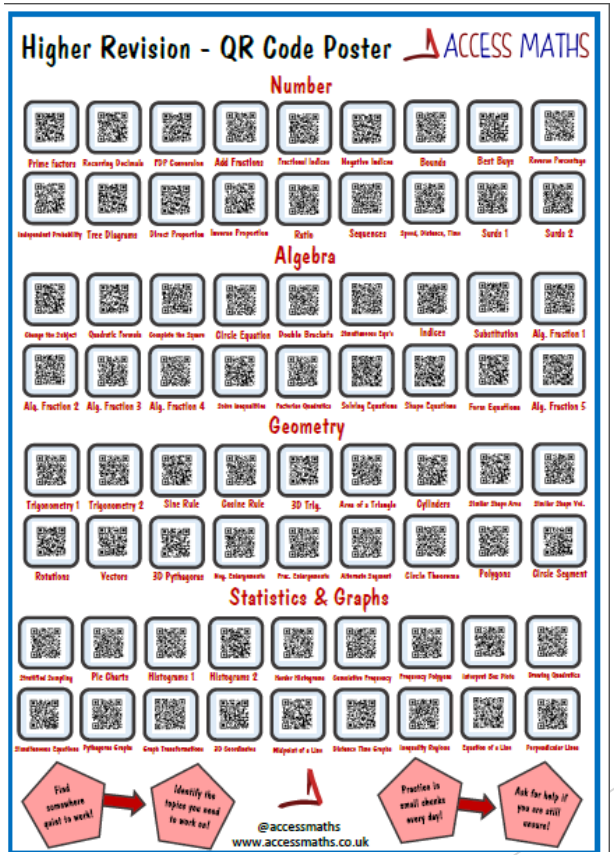
Higher Revision - QR Code Poster
ACCESS MATHS
Number
Prime Factors
Recurring Decimals
FDP Conversion
Add Fractions
Fractional Indices
Negative Indices
Bounds
Best Buys
Reverse Percentage
Independent Probability
Tree Diagrams
Direct Proportion
Inverse Proportion
Ratio
Sequences
Speed, Distance, Time
Surds 1
Surds 2
Algebra
Change the Subject
Quadratic Formula
Complete the Square
Circle Equation
Double Brackets
Simultaneous Eqn's
Indices
Substitution
Alg. Fraction 1
Alg. Fraction 2
Alg. Fraction 3
Alg. Fraction 4
Solve Inequalities
Factorise Quadratics
Solving Equations
Shape Equations
Form Equations
Alg. Fraction 5
Geometry
Trigonometry 1
Trigonometry 2
Sine Rule
Cosine Rule
3D Trig.
Area of a Triangle
Cylinders
Similar Shape Area
Similar Shape Vol.
Rotations
Vectors
3D Pythagoras
Neg. Enlargements
Frac. Enlargements
Alternate Segment
Circle Theorems
Polygons
Circle Segment
Statistics & Graphs
Stratified Sampling
Pie Charts
Histograms 1
Histograms 2
Number Histograms
Cumulative Frequency
Frequency Polygons
Interpret Box Plots
Drawing Quadratics
Simultaneous Equations
Pythagoras Graphs
Graph Transformations
3D Coordinates
Midpoint of a Line
Distance Time Graphs
Inequality Regions
Equation of a Line
Perpendicular Lines
Find somewhere quiet to work!
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Practise in small chunks every day!
Ask for help if you are still unsure!
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Saturday schools, holiday revision, lunch and after school classes.

Revision guides available from department.

First 3 sittings:

- 91%/91%/93% 4+ (NA = 70%)
- 76%/72%/75% 5+ (NA = 50%)
- 27%/25%/34% 7+ (NA = 16%)
- Progress 8 of 1.08

Exam dates 2020

- Paper 1 = Tuesday 19th May
- HALF TERM
- Paper 2 = Thursday 4th June
- Paper 3 = Monday 8th June

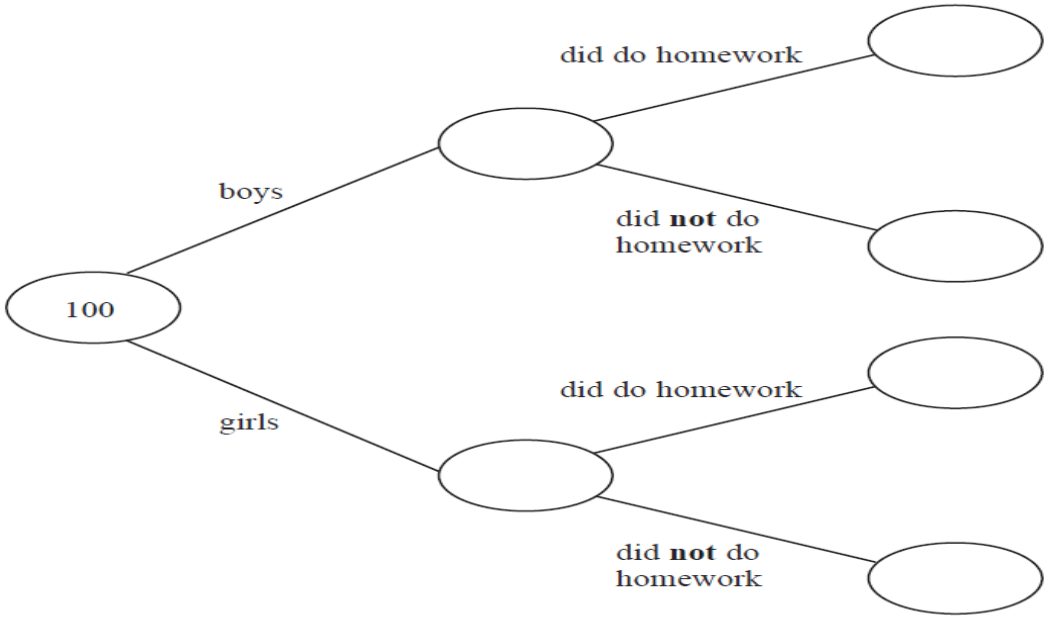
New topics: Frequency trees

17 100 students had some homework.

42 of these students are boys.
8 of the 100 students did **not** do their homework.
53 of the girls did do their homework.

(a) Use this information to complete the frequency tree.

(3)



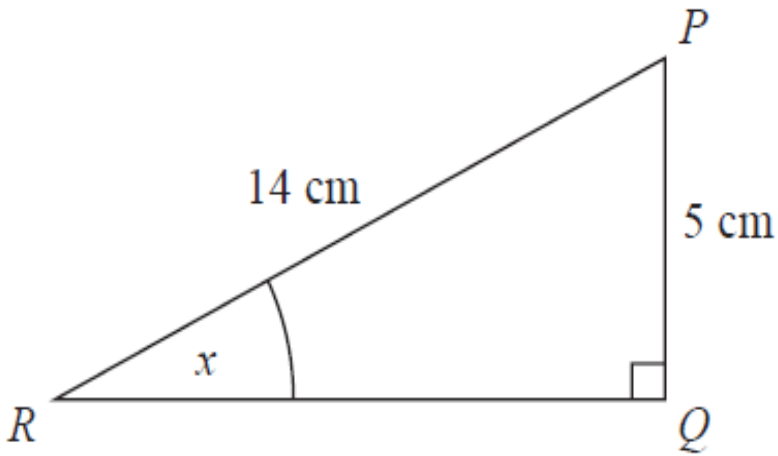
One of the girls is chosen at random.

(b) Work out the probability that this girl did **not** do her homework.

Foundation and Higher

New topics: Trigonometry

24 PQR is a right-angled triangle.



Work out the size of the angle marked x.
Give your answer correct to 1 decimal place.

Foundation

New topics: Venn Diagrams

12 Sami asked 50 people which drinks they liked from tea, coffee and milk.

All 50 people like at least one of the drinks
19 people like all three drinks.
16 people like tea and coffee but do **not** like milk.
21 people like coffee and milk.
24 people like tea and milk.
40 people like coffee.
1 person likes only milk.

Sami selects at random one of the 50 people.

(a) Work out the probability that this person likes tea.

Higher