Pearson Edexcel GCSE Maths — Grade 7–9 Most Common Topics & Question Types

For Grades 7, 8, and 9, Edexcel repeatedly tests:

- multi-step algebra
- proof/reasoning
- non-routine problem solving
- exact values
- advanced geometry
- difficult ratio/probability questions

These usually appear in the final third of the paper and carry the highest marks.

TOP GRADE 7–9 TOPICS (Most Frequently Appearing)

1. Algebraic Proof

Very common Grade 8/9 topic.

Typical questions:

- Prove a number is even/odd
- Show an expression is divisible by something
- Proof with consecutive integers

Example:
Prove:

$$n(n+1)$$

is always even.

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2. Completing the Square

Extremely common Higher topic.

Example:
Complete the square:

$$x^2 + 6x + 5$$

Also used for:

- turning points
- solving quadratics
- graph sketching

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3. Quadratic Graphs & Functions

Very frequent in Grade 7–9 questions.

Typical:

- Sketch graphs
- Find roots
- Interpret turning points
- Solve graphically

Example:

$$y = x^2 - 4x - 5$$

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4. Simultaneous Equations (Including Quadratics)

A favourite difficult topic.

Example:
Solve:

$$y = x + 1$$

and

$$y = x^2 - 3$$

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5. Circle Theorems

Almost guaranteed on Higher papers.

Must know:

- angle at centre
- alternate segment theorem
- cyclic quadrilaterals
- tangents

These are heavily repeated.

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6. Advanced Trigonometry

Very common Grade 8/9 area.

Includes:

- exact trig values
- sine rule
- cosine rule
- area formula
- 3D trig

Example:
Find side $x$using cosine rule.

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7. Surds (Advanced)

Huge Grade 8/9 topic.

Typical:

- rationalising denominators
- expanding brackets with surds
- solving equations with surds

Example:

$$\frac{3}{\sqrt{5}-2}$$

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8. Functions & Composite Functions

Frequently appears near end of papers.

Example:
Given:

$$f(x) = 2x + 3$$
$$g(x) = x^2$$

Find:

$$fg(x)$$

and

$$f^{-1}(x)$$

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9. Iteration

Very common Grade 8/9 question.

Example:
Use iteration to solve:

$$x = \sqrt{3x + 1}$$

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10. Bounds & Error Intervals

Appears often in difficult problem solving.

Example:
A rectangle measures $12.4cm$correct to 1 decimal place.

Find upper/lower bounds.

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11. Vectors Proof Questions

Classic Grade 9 material.

Typical:

- prove points are collinear

- ratio proofs
- midpoint vector proofs

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12. Geometric Proof

Very common for Grade 8/9.

Examples:

- angle proofs
- parallel line proofs
- algebraic geometry proofs

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13. Advanced Probability

Frequently appears as 5–6 mark questions.

Typical:

- tree diagrams with algebra
- conditional probability
- Venn diagrams
- probability with unknowns

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14. Direct & Inverse Proportion

One of the most repeated hard topics.

Example:

$$y \propto x^2$$

Find equation and solve.

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15. Inequalities & Regions

Very common.

Includes:

- quadratic inequalities
- graphical regions
- shading regions

Most Repeated Grade 9 Question Styles

These appear repeatedly:

Question Type	**Frequency**
Circle theorem proofs	Very High
Algebraic proof	Very High
Vectors proof	Very High
Quadratic simultaneous equations	Very High
Iteration	High
Functions/inverses	High
Hard ratio problems	High
Bounds/error intervals	High
Geometric reasoning	Very High
Non-calculator surds	Very High

Topics That Usually Separate Grade 9 Students

These are the “hardest recurring” topics:

- vector proofs
- algebraic proof
- difficult probability
- iteration
- advanced trigonometry
- composite functions
- circle theorem reasoning
- unfamiliar multi-step algebra