

End-of-year maths quiz for A Level Maths

A Level Math Revision · A Level Maths (Year 12 and Year 13) · Student sheet

Name _____

Class _____

Date _____

No calculator needed.

Starter (5 minutes)

1. Work out 6×7 .
2. Work out $\sqrt{81}$.

Main activity (35 minutes)

Round 1: Algebra

Five questions, getting harder.

- a. Simplify $\sqrt{50}$.
- b. Solve $3^{2x} = 81$.
- c. Find the remainder when $x^3 + 2x - 1$ is divided by $(x - 1)$.
- d. Find the discriminant of $2x^2 + 3x - 5$.
- e. Solve $|x - 3| = 5$.

Round 2: Coordinate geometry

Five questions, getting harder.

- a. Find the gradient of $3x + 2y = 6$.
- b. Find the centre and radius of $(x - 2)^2 + (y + 1)^2 = 25$.
- c. Find the midpoint of $(1, 4)$ and $(7, -2)$.
- d. Find the gradient of a line perpendicular to $y = 4x - 1$.
- e. A line passes through $(2, 3)$ and is perpendicular to $y = 2x + 1$. Find its y -intercept.

Round 3: Trigonometry

Five questions, getting harder.

- a. Write down $\sin(\pi/6)$.
- b. Convert 135° to radians.
- c. Solve $\tan x = 1$ for $0^\circ \leq x < 360^\circ$.
- d. Write down the exact value of $\cos 30^\circ$.
- e. Find the area of a sector of radius 4 cm and angle 1.5 radians.

Round 4: Calculus

Five questions, getting harder.

- a. Differentiate $5x^3$.
- b. Find $\int 4x^3 \, dx$.
- c. Find the x -coordinate of the stationary point of $y = x^2 - 8x + 3$.
- d. Evaluate $\int_1^3 2x \, dx$.
- e. Differentiate e^{3x} .

Round 5: Statistics

Five questions, getting harder.

- a. $X \sim B(20, 0.3)$. Find $E(X)$.
- b. Find the mean of 2, 4, 6, 8.
- c. $P(A) = 0.4$ and $P(B | A) = 0.5$. Find $P(A \cap B)$.
- d. $Z \sim N(0, 1)$. Write down $P(Z < 0)$.
- e. $X \sim B(4, 0.5)$. Find $P(X = 4)$.

Extension

1. Tie-break, closest wins: how many seconds are there in a week?