

End-of-year maths quiz for IB Maths

IB Math Revision · IB Maths SL and HL (AA and AI) · Student sheet

Name _____

Class _____

Date _____

No GDC needed.

Starter (5 minutes)

1. Work out 6×7 .

2. Work out $\sqrt{81}$.

Main activity (35 minutes)

Round 1: Number and algebra

Five questions, getting harder.

a. Evaluate $\log_3 81$.

b. $u_1 = 5$ and $d = 3$. Find u_{20} .

c. Find the sum to infinity of $8 + 4 + 2 + \dots$

d. Solve $2^{x+1} = 32$.

e. Find the coefficient of x^3 in $(2 + x)^5$.

Round 2: Functions

Five questions, getting harder.

- a. $f(x) = 2x + 3$. Find $f^{-1}(11)$.
- b. Write down the vertex of $y = (x - 2)^2 + 5$.
- c. Write down the vertical asymptote of $y = 3/(x - 4)$.
- d. $f(x) = x^2$ and $g(x) = x + 1$. Find $(f \circ g)(2)$.
- e. Solve $e^{2x} = 7$, giving an exact answer.

Round 3: Geometry and trigonometry

Five questions, getting harder.

- a. Write down the exact value of $\cos 60^\circ$.
- b. Find the arc length of a sector of radius 6 cm and angle $\pi/3$.
- c. Find the distance between (1, 2, 3) and (3, 5, 9).
- d. Solve $\sin x = 1/2$ for $0 \leq x \leq \pi$.
- e. Find the area of a triangle with sides 8 cm and 5 cm and an included angle of 30° .

Round 4: Statistics and probability

Five questions, getting harder.

- a. Find the mean of 3, 7, 8, 10, 12.
- b. A and B are independent with $P(A) = 0.3$ and $P(B) = 0.5$. Find $P(A \cap B)$.
- c. $X \sim B(10, 0.2)$. Find $E(X)$.
- d. $X \sim N(50, 4^2)$. Find $P(X > 50)$.
- e. $P(A) = 0.6$, $P(B) = 0.5$ and $P(A \cup B) = 0.8$. Find $P(A \cap B)$.

Round 5: Calculus

Five questions, getting harder.

- a. Differentiate x^4 .
- b. Find $\int 6x^2 \, dx$.
- c. Find the gradient of $y = x^2 - 3x$ at $x = 5$.
- d. Evaluate $\int_0^2 3x^2 \, dx$.
- e. Find the gradient of $y = xe^x$ at $x = 0$.

Extension

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