

GRADE 10 | 2024

Grade 10 Mathematics Practice Exam

Mathematics

CAPS ALIGNED

GRADE 10 MATHEMATICS PRACTICE EXAMINATION

Time: 3 hours

Marks: 150

INSTRUCTIONS:

- Answer ALL questions unless otherwise instructed.
- Show ALL working for full marks.
- This is a CAPS-aligned practice examination.

QUESTION 1: EXPONENTS AND SURDS**1.1 (9 marks)**Simplify: (a) $2^3 \times 2^5 / 2^6$ (b) $(3x^2)^3$ (c) $x^{-2} \times x^5$ **1.2 (3 marks)**Solve: $3^{(x+1)} = 81$ **1.3 (3 marks)**Rationalise: $6/\sqrt{3}$ **QUESTION 2: FUNCTIONS AND GRAPHS****2.1 (5 marks)**For $f(x) = 2x - 6$: find x-intercept, y-intercept, and sketch.**2.2 (4 marks)**

The parabola $y = a(x+1)^2 - 4$ has x-intercepts at $x = 1$ and $x = -3$.
Determine the value of a .

2.3 (4 marks)

Describe the graph $y = 2^x$. Give its y-intercept and asymptote.

QUESTION 3: TRIGONOMETRY**3.1 (6 marks)**

In triangle ABC with angle B = 90, AB = 5, BC = 12. Calculate: sin A, cos A, tan A.

3.2 (4 marks)

Without a calculator, find the value of: $\sin 60^\circ / \cos 30^\circ + \tan 45^\circ$

3.3 (4 marks)

For which values of x in $[0, 360]$ does $\sin x = -1/2$?

QUESTION 4: FINANCIAL MATHEMATICS**4.1 (5 marks)**

R15000 is invested at 8.5% per year, compounded quarterly for 3 years. Calculate the final amount.

4.2 (3 marks)

A house costs R850000 today. If inflation is 7% per year, what will it cost in 10 years?
