KWAZULU-NATAL PROVINCE

EDUCATION
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 10

MATHEMATICS
COMMON TEST
MARCH 2026

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MARKS: 75

TIME: $1\frac{1}{2}$ hours

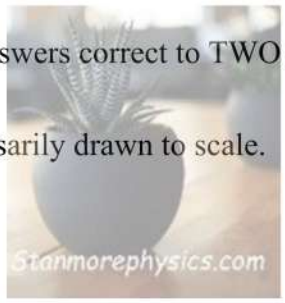
This question paper consists of 6 pages.

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INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. This question paper consists of 4 questions.
2. Answer ALL the questions.
3. Number the answers correctly according to the numbering system used in this question paper.
4. Clearly show ALL calculations, diagrams, graphs, etc. which you have used in determining your answers.
5. Answers only will NOT necessarily be awarded full marks.
6. You may use an approved scientific calculator (non-programmable and non-graphical), unless stated otherwise. Stanmorephysics.com
7. If necessary, round off answers correct to TWO decimal places, unless stated otherwise.
8. Diagrams are NOT necessarily drawn to scale.
9. Write neatly and legibly.



QUESTION 1

1.1 State whether each of the following numbers is rational or irrational:

1.1.1 $\frac{\pi}{5}$ (1)

1.1.2 $\sqrt[3]{54}$ (1)

1.1.3 $-\frac{0}{4}$ (1)

1.2 Factorise completely:

1.2.1 $x^3 - 64x$ (2)

1.2.2 $x^2 + 6x - 7$ (2)

1.2.3 $y - x + xy - 1$ (3)

1.3 Simplify the following expressions fully:



1.3.1 $(2x + y)^3$ (4)

1.3.2 $\frac{3x^2y}{6xy^2} \div \frac{x}{4y}$ (3)

1.3.3 $\frac{3^{x-1}.(4^x)^3}{2^{5x-3}.6^{x+2}}$ (3)

1.3.4 $\frac{2+x}{4x^2-2x+1} - \frac{8x+1}{8x^3+1}$ (4)

[24]

QUESTION 2

2.1 Solve for x:

2.1.1 $4^x = \frac{1}{16}$ (2)

2.1.2 $9^x + 3^{1+2x} = 36$ (4)

2.1.3 $\frac{x^2+6}{x^2+x} + \frac{3}{2x} = 2$ (5)

2.1.4 If $4^{10} \times 3 + 4^{10} + 2 \times 4^{10} = a \times b^x$ (where a and b are prime numbers). (3)

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2.2 Given: $-3 < 1 - \frac{2x}{3} \leq 7$

2.2.1 Solve for x in the inequality. Stanmorephysics.com (3)

2.2.2 Write down your answer in question 2.2.1 in interval notation. (2)

2.3 **Without the use of a calculator** and **showing all working**, determine between which **two** consecutive integers $-\sqrt{38}$ lies. (3)

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2.4 At a school stationery shop, two exercise books and three pen cost R39, while four exercise books and one pen cost R41. Calculate the cost of one exercise book and one pen simultaneously. Stanmorephysics.com

Let the cost of one exercise book be x rand and the cost of one pen be y rand. (5)

2.5 If $x^2 + y^2 = 28$ and $xy = 4$, calculate the value of $x + y$ if $x + y > 0$. (4)

[31]

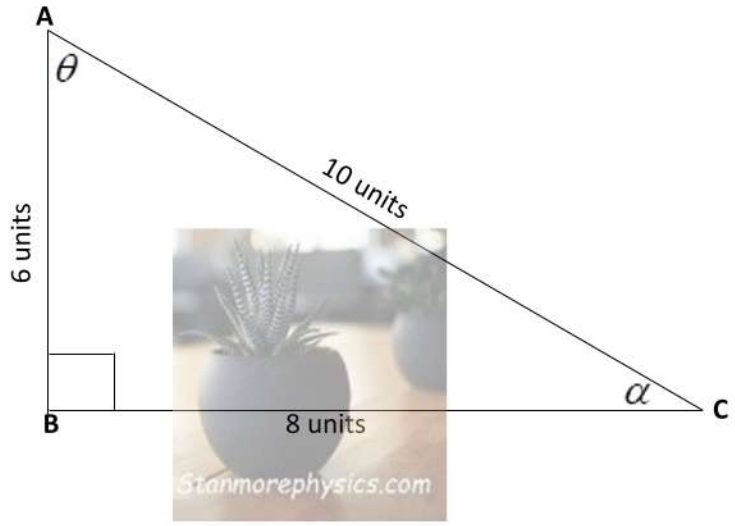
QUESTION 3

3.1 Calculate correct to two decimal places:

3.1.1 $(\cos 28°)(\cot 28°)$ (2)

3.1.2 $\sec(40° + 10°)$ (2)

3.2 In ΔABC below, AB = 6 units, BC = 8 units and AC = 10 units.
AB is perpendicular to BC, $A = \theta$ and $C = \alpha$.



3.2.1 Without using a calculator, determine the value of:

a) $\sin\theta$ (1)

b) $\cot\alpha$ (1)

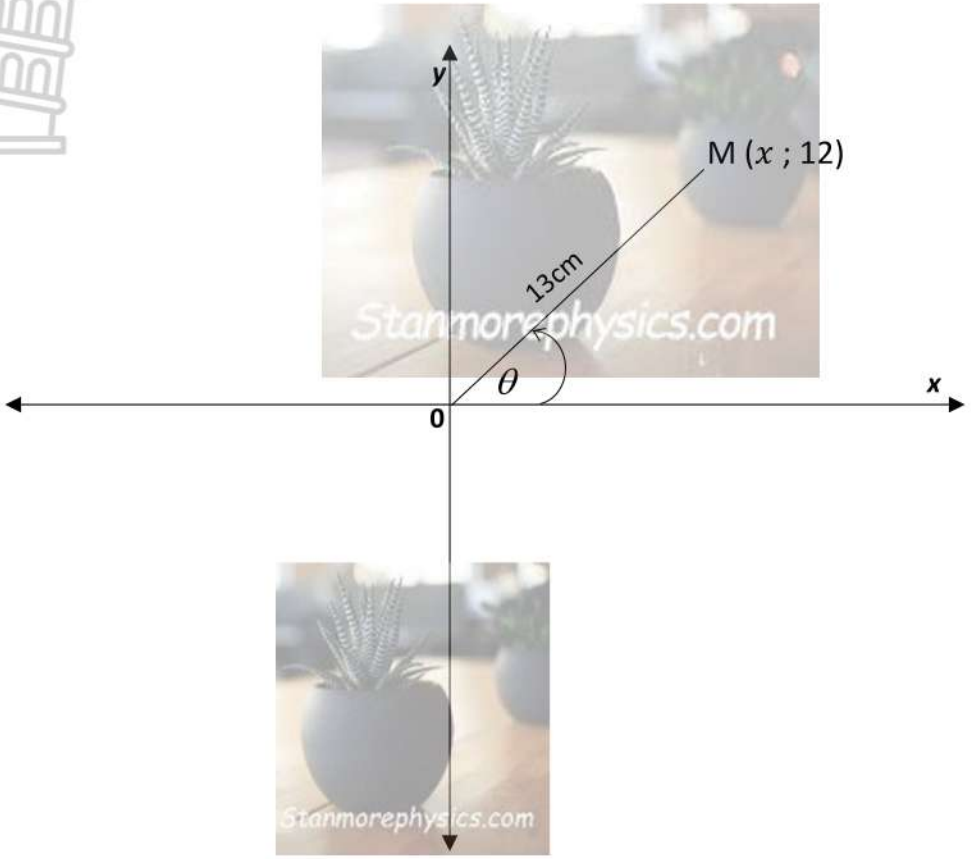
c) $\cos\alpha$ (1)

3.2.2 Calculate the size of θ (3)

[10]

QUESTION 4

4.1 In the diagram below, OM=13cm, $M(x;12)$ and acute angle XOM=θ.



Without using a calculator, determine the value of:

4.1.1 $\cos\theta$ (3)

4.1.2 $(\sin\theta)(\sin\theta)+(\cos\theta)(\cos\theta)$ (3)

4.2 Without using a calculator, determine the value of:

$$\frac{\sqrt{3}}{10}\tan^2 60° - \frac{3\sqrt{3}}{10}\cot^2 45°$$ (4)

[10]

TOTAL MARKS: 75