GRADE IX - SYNERGY MATHEMATICS OLYMPIAD (SMO)

MATHEMATICS SYLLABUS FRAMEWORK

50 Marks | 60 Minutes | 5 Sections

1. Overall Examination Framework

Section	Area	Major Topics
A	Mathematical & Logical Reasoning	Number System; Polynomials; Coordinate Geometry; Logical Reasoning
B	Algebra & Mathematical Patterns	Polynomials; Linear Equations in Two Variables; Number System
C	Geometry, Trigonometry & Measurement	Trigonometry; Lines & Angles; Triangles; Quadrilaterals; Area of Parallelograms & Triangles; Circles; Heron's Formula; Surface Area & Volume
D	Data Handling & Problem Solving	Statistics; Probability; Coordinate Geometry; Linear Equations; Mensuration
E	Brain Teasers & Synergy Challenge	Integrated problems from all topics; HOTS; visual reasoning; non-routine mathematics

Recommended Grade 9 SMO Progression

Basic Concept → Concept Application → Mathematical Reasoning → Multi-Step Problem → HOTS → Synergy Challenge

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SAMPLE QUESTIONS – MATHEMATICS

50 Marks | 60 Minutes | Sample MCQs .

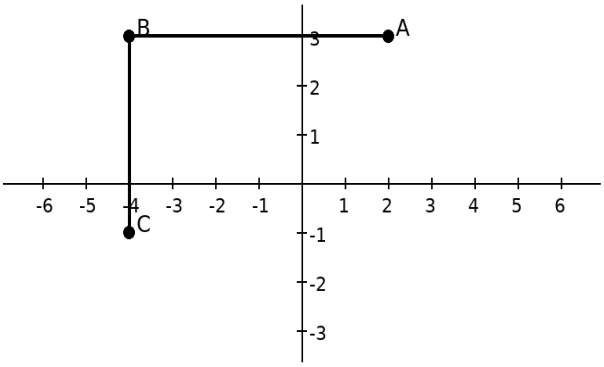
1. Which of the following is irrational?

A. √49 B. 0.125 C. √2 D. 7/11

2. If $p(x) = x^2 - 5x + 6$, which is the value of p(2)?

A. 0 B. 2 C. 4
D. 6

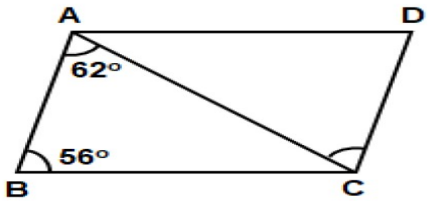
3. Using the diagram, what is the length of AB?



A. 4 units B. 5 units

C. 6 units D. 7 units

4. ABCD is a rhombus with angle ABC = 56^0, then angle ACD is equal to



A. 90^0 B. 60^0

C. 56^0 D. 62^0

5. A speaks truth in 60% of cases and B speaks the truth in 70% of cases. The probability that they will say the same thing while describing a single event is

A. 0.56 B. 0.54 C. 0.38 D. 0.94

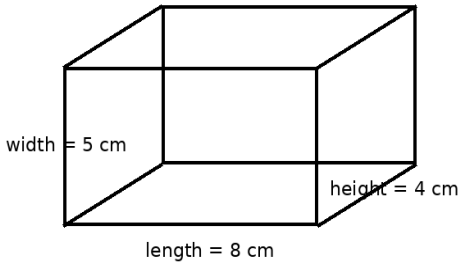
6. A bag contains 5 red, 3 blue and 2 green balls. What is the probability of selecting a blue ball?

A. 1/10 B. 3/10 C. 1/3 D. 2/5

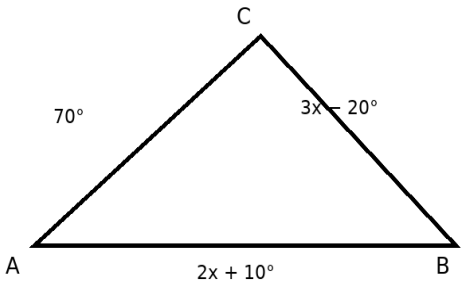
7. A cuboid has length 8 cm, width 5 cm and height 4 cm. What is its volume?

A. 160 cm^3 B. 170 cm^3

C. 180 cm^3 D. 200 cm^3



8. In the triangle shown, the three angles are 70°, (2x+10)° and (3x−20)°. What is x?



A. 24 B. 26

C. 28 D. 30

9. A triangle has sides 5 cm, 12 cm and 13 cm. What is its area?

A. 20 cm^2 B. 30 cm^2

C. 40 cm^2 D. 60 cm^2

Answer: B

Explanation: Semi-perimeter s=(5+12+13)/2=15. Area=√[15×10×3×2]=30 cm^2.

10. A rectangle has length x+3 and breadth x−2. If its area is 50 cm^2, what is the positive value of x?

A. 5 B. 6 C. 7 D. 8

Answer: C

Explanation: (x+3)(x−2)=50 gives x^2+x−56=0 = (x+8)(x−7). The positive value is x=7.

Answer Key

1	2	3	4	5	6	7	8	9	10
C	A	C	D	B	B	A	A	B	C