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SCO INTERNATIONAL OLYMPIAD

CLASS 7 MATHS OLYMPIAD SAMPLE PAPER

A professional question paper with answer key and explanations

A practice-oriented sample paper for Class 7 learners to build speed, accuracy, and confidence across the Olympiad mathematics pathway.

- age-fit mathematics reasoning for Class 7 learners globally
- question blocks with compact professional question-number tags
- answer keys and explanations included for transparent learning and review

Maths	English	Science	Mental Ability	Finance Knowledge
AI	Entrepreneurship	GK	Coding	Life Skills

SCO International Maths Olympiad Class 7 Sample Question Paper

Candidate Guidelines

Class	7
Exam	SCO International Maths Olympiad
Duration	60 minutes
Question Type	Objective multiple-choice questions
Marking	+1 for every correct answer; no negative marking unless announced by the examination authority
Sections	General Mathematics, Case Study, Reason/Assertion, and Achievers Section

General Mathematics

Q.1 Complete the pattern: 2, 6, 12, 20, 30, __.

A. 36
B. 40
C. 42
D. 44

Answer	C. 42

Explanation: The differences are 4, 6, 8, 10; next difference is 12, so next term = 30 + 12 = 42.

Q.2 If $a + 1/a = 3$, find $a^2 + 1/a^2$.

A. 5
B. 7
C. 9
D. 11

Answer	B. 7

Explanation: Squaring gives $a^2 + 2 + 1/a^2 = 9$, so $a^2 + 1/a^2 = 7$.

Q.3 A polyhedron has 8 faces and 12 vertices. If Euler's formula V - E + F = 2 holds, how many edges does it have?

A. 16
B. 18
C. 20
D. 22

Answer	B. 18

Explanation: 12 - E + 8 = 2 gives 20 - E = 2, so E = 18.

Q.4 If 5x - 7 = 3x + 9, what is x?

A. 6
B. 7
C. 8
D. 9

Answer	C. 8

Explanation: 5x - 3x = 9 + 7, so 2x = 16 and x = 8.

Q.5 Which pair of angles can be adjacent angles of a parallelogram?

A. 80° and 80°
B. 60° and 120°
C. 90° and 100°
D. 110° and 110°

Answer	**B. 60° and 120°**

Explanation: Adjacent angles of a parallelogram are supplementary. 60° + 120° = 180°.

Q.6 A worker completes 1/6 of a task in one hour. How much of the task is completed in 4 hours?

A. 1/3
B. 1/2
C. 2/3
D. 3/4

Answer	**C. 2/3**

Explanation: In 4 hours, work done = 4 × 1/6 = 4/6 = 2/3.

Q.7 The perimeter of a square is 48 cm. What is its area?

A. 96 cm^2
B. 120 cm^2
C. 144 cm^2
D. 196 cm^2

Answer	**C. 144 cm^2**

Explanation: Side = 48/4 = 12 cm. Area = 12^2 = 144 cm^2.

Q.8 The mean of 5 numbers is 18. If four numbers are 12, 15, 20, and 23, what is the fifth number?

A. 18
B. 20
C. 22
D. 24

Answer	**B. 20**

Explanation: Total = 5 × 18 = 90. Known sum = 70. Fifth number = 90 - 70 = 20.

Q.9 A regular polygon has each exterior angle equal to 45°. How many sides does it have?

A. 6
B. 7
C. 8
D. 9

Answer	C. 8

Explanation: Number of sides = 360°/45° = 8.

Q.10 If 3/4 of a number is 60, what is the number?

A. 45
B. 60
C. 75
D. 80

Answer	D. 80

Explanation: Number = 60 × 4/3 = 80.

Reasoning, Case Study, and Application

Q.11 Assertion (A): The diagonals of a rectangle are equal. Reason (R): A rectangle has all angles equal to 90°. Which option is correct?

A. Both A and R are true, and R is the correct explanation of A.
B. Both A and R are true, but R is not the correct explanation of A.
C. A is true, but R is false.
D. Both A and R are false.

Answer	B. Both A and R are true, but R is not the correct explanation of A.

Explanation: Both statements are true, but the equality of diagonals is a special property of rectangles; the reason alone does not fully explain it.

Q.12 Assertion (A): Every square is a rhombus. Reason (R): All sides of a square are equal. Which option is correct?

A. Both A and R are true, and R is the correct explanation of A.

B. Both A and R are true, but R is not the correct explanation of A.
C. A is true, but R is false.
D. Both A and R are false.

Answer	**A. Both A and R are true, and R is the correct explanation of A.**

Explanation: A rhombus is a quadrilateral with all sides equal. Since a square has all sides equal, every square is a rhombus.

Q.13 A shop marks an item at ₹800 and gives a 15% discount. What is the selling price?

A. ₹640
B. ₹680
C. ₹700
D. ₹720

Answer	**B. ₹680**

Explanation: Discount = 15% of 800 = ₹120. Selling price = 800 - 120 = ₹680.

Q.14 Two pipes fill a tank in 10 hours and 15 hours respectively. How long do they take together?

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

Answer	**B. 6 hours**

Explanation: Combined rate = 1/10 + 1/15 = 1/6 tank per hour. Time = 6 hours.

Q.15 A rectangle has length 15 cm and breadth 8 cm. What is the length of its diagonal?

A. 15 cm
B. 17 cm
C. 19 cm
D. 21 cm

Answer	**B. 17 cm**

Explanation: By Pythagoras, diagonal = $\sqrt{(15^2+8^2)}=\sqrt{289}=17$ cm.

Q.16 If 2x + 3y = 24 and y = 4, what is x?

A. 4
B. 5
C. 6
D. 8

Answer	C. 6

Explanation: 2x + 12 = 24, so 2x = 12 and x = 6.

Q.17 A spinner has 5 equal sectors numbered 1 to 5. What is the probability of landing on an even number?

A. 1/5
B. 2/5
C. 3/5
D. 4/5

Answer	B. 2/5

Explanation: Even outcomes are 2 and 4, so favourable outcomes = 2 out of 5.

Q.18 Simplify: 4a + 3b - 2a + 5b.

A. 2a + 8b
B. 6a + 2b
C. 6a + 8b
D. 2a + 2b

Answer	A. 2a + 8b

Explanation: Combine like terms: 4a - 2a = 2a and 3b + 5b = 8b.

Q.19 The sum of two numbers is 54 and their ratio is 5:4. What are the numbers?

A. 25 and 29
B. 30 and 24
C. 35 and 19
D. 32 and 22

Answer	B. 30 and 24

Explanation: Total parts = 9. Each part = 54/9 = 6. Numbers are 5×6=30 and 4×6=24.

Q.20 A cube has side 6 cm. What is its volume?

A. 36 cm^3
B. 72 cm^3
C. 108 cm^3
D. 216 cm^3

Answer	D. 216 cm^3

Explanation: Volume of a cube = $side^3 = 6^3 = 216\ cm^3$.

Case Study Based Questions

Q.21 A school has 240 students. If 3/8 of them joined the maths club, how many students joined the club?

A. 60
B. 80
C. 90
D. 100

Answer	C. 90

Explanation: 3/8 of 240 = 90.

Q.22 A farmer has a rectangular field of length 50 m and breadth 30 m. A 2 m wide path is built inside the boundary. What is the area left for farming?

A. 1196 m^2
B. 1200 m^2
C. 1300 m^2
D. 1500 m^2

Answer	A. 1196 m^2

Explanation: Remaining dimensions = 46 m × 26 m. Area = 1196 m^2.

Q.23 A car travels 180 km in 3 hours. At the same speed, how far will it travel in 5 hours?

A. 240 km
B. 270 km
C. 300 km
D. 320 km

Answer	C. 300 km

Explanation: Speed = 180/3 = 60 km/h. Distance in 5 hours = 60 × 5 = 300 km.

Q.24 A fruit seller buys oranges at ₹4 each and sells them at ₹5 each. If he sells 120 oranges, what is his profit?

A. ₹100
B. ₹120
C. ₹150
D. ₹200

Answer	B. ₹120

Explanation: Profit per orange = ₹1. Total profit = 120 × 1 = ₹120.

Q.25 A triangle has angles x, 2x, and 3x. What is the largest angle?

A. 30°
B. 60°
C. 90°
D. 120°

Answer	C. 90°

Explanation: x + 2x + 3x = 180°, so 6x = 180° and x = 30°. Largest angle = 3x = 90°.

Q.26 If a number is increased by 20% and becomes 96, what was the original number?

A. 72
B. 76
C. 80
D. 84

Answer	C. 80

Explanation: 120% of original = 96. Original = 96/1.2 = 80.

Q.27 The median of the data 4, 9, 2, 11, 7 is:

A. 4
B. 7
C. 9
D. 11

Answer	B. 7

Explanation: Arranged data: 2, 4, 7, 9, 11. Middle value is 7.

Q.28 A bag has 3 red balls and 7 blue balls. What is the probability of choosing a red ball?

A. 3/10
B. 7/10
C. 1/3
D. 2/5

Answer	A. 3/10

Explanation: There are 3 red balls out of 10 total balls, so probability = 3/10.

Q.29 Find the value of $2^3 \times 2^4$.

A. 2^7
B. 2^{12}
C. 4^7
D. 16

Answer	A. 2^7

Explanation: When bases are the same, add exponents: $2^3 \times 2^4 = 2^7$.

Q.30 A rectangular prism has dimensions 3 cm, 4 cm, and 5 cm. What is its volume?

A. 12 cm^3
B. 20 cm^3
C. 60 cm^3
D. 120 cm^3

Answer	C. 60 cm^3

Explanation: Volume = length × breadth × height = 3 × 4 × 5 = 60 cm^3.

Achievers Section

Q.31 If 1 + 2 + 3 + ... + n = 55, what is n?

A. 9
B. 10
C. 11
D. 12

Answer	B. 10

Explanation: n(n+1)/2 = 55. Since 10×11/2 = 55, n = 10.

Q.32 A number leaves remainder 2 when divided by 5 and remainder 3 when divided by 7. What is the smallest such number?

A. 17
B. 22
C. 27
D. 32

Answer	A. 17

Explanation: Numbers leaving remainder 2 on division by 5 are 2, 7, 12, 17, ... Among them, 17 leaves remainder 3 when divided by 7.

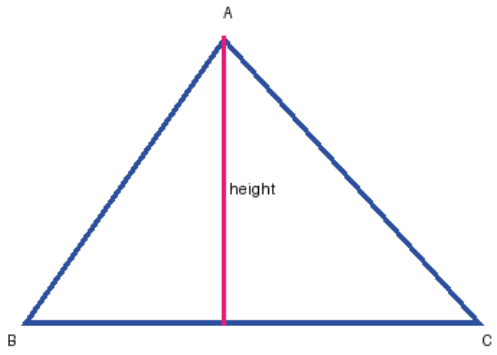
Q.33 If a:b = 3:5 and b:c = 10:7, find a:b:c.

A. 6:10:7
B. 3:5:7
C. 9:15:7
D. 6:5:7

Answer	A. 6:10:7

Explanation: Make b common. a:b = 3:5 = 6:10 and b:c = 10:7. Thus a:b:c = 6:10:7.

Q.34 The area of a triangle is 84 cm^2 and its base is 14 cm. What is its height?



A. 6 cm
B. 10 cm
C. 12 cm
D. 14 cm

Answer	C. 12 cm

Explanation: Area = 1/2 × base × height. So 84 = 1/2 × 14 × h = 7h. Hence h = 12 cm.

Q.35 A number is multiplied by 4 and then 9 is subtracted. The result is 31. What is the number?

A. 8
B. 9
C. 10
D. 11

Answer	C. 10

Explanation: Let the number be x. 4x - 9 = 31, so 4x = 40 and x = 10.

Q.36 Two angles are complementary. One angle is 18° more than the other. What are the angles?

A. 36° and 54°
B. 40° and 50°
C. 30° and 60°
D. 42° and 48°

Answer	A. 36° and 54°

Explanation: Let the smaller angle be x. Then x + x + 18 = 90, so 2x = 72 and x = 36. The angles are 36° and 54°.

Q.37 Which number is a perfect cube?

A. 144
B. 216
C. 250
D. 360

Answer	B. 216

Explanation: $216 = 6^3$, so it is a perfect cube.

Q.38 Simplify: $(3x^2y)(2xy^2)$.

A. $5x^3y^3$
B. $6x^3y^3$
C. $6x^2y^2$

D. $6x^3y^2$

Answer	**B.** $6x^3y^3$

Explanation: Multiply coefficients and add exponents: $3\times2 = 6$, $x^2\times x = x^3$, $y\times y^2 = y^3$.

Q.39 A rectangle and a square have the same perimeter of 40 cm. The rectangle is 12 cm long. Which has the greater area?

A. Rectangle
B. Square
C. Both equal
D. Cannot determine

Answer	**B. Square**

Explanation: Square side = 10 cm, area = 100 cm^2. Rectangle breadth = 20 - 12 = 8 cm, area = 96 cm^2. The square has greater area.

Q.40 If 5 workers complete a task in 12 days, how many days will 10 workers take at the same rate?

A. 4 days
B. 5 days
C. 6 days
D. 8 days

Answer	**C. 6 days**

Explanation: Workers and days are inversely proportional. Doubling workers from 5 to 10 halves time from 12 to 6 days.

Q.41 The exterior angle of a triangle is 125°. One remote interior angle is 55°. What is the other remote interior angle?

A. 60°
B. 70°
C. 80°
D. 90°

Answer	**B. 70°**

Explanation: Exterior angle equals sum of the two remote interior angles. Other angle = 125° - 55° = 70°.

Q.42 A box contains cards numbered 1 to 20. What is the probability of drawing a multiple of 4?

A. 1/5
B. 1/4
C. 1/3
D. 2/5

Answer	**B. 1/4**

Explanation: Multiples of 4 are 4, 8, 12, 16, 20: 5 outcomes out of 20. Probability = 5/20 = 1/4.

Q.43 Find the value of $7^2 - 5^2$.

A. 12
B. 24
C. 36
D. 48

Answer	**B. 24**

Explanation: $7^2 - 5^2 = 49 - 25 = 24$.

Q.44 A map uses scale 1 cm = 5 km. If the distance on the map is 7.5 cm, what is the actual distance?

A. 32.5 km
B. 35 km
C. 37.5 km
D. 40 km

Answer	**C. 37.5 km**

Explanation: Actual distance = 7.5 × 5 = 37.5 km.

Q.45 The sum of three consecutive integers is 72. What is the largest integer?

A. 23
B. 24
C. 25
D. 26

Answer	**C. 25**

Explanation: Let the integers be x-1, x, x+1. Their sum is 3x = 72, so x = 24. Largest = 25.

Q.46 If 40% of a number is 64, what is 25% of the same number?

A. 32
B. 36
C. 40
D. 48

Answer	C. 40

Explanation: Number = 64/0.40 = 160. 25% of 160 = 40.

Q.47 What is the next term: 3, 9, 27, 81, __?

A. 162
B. 216
C. 243
D. 324

Answer	C. 243

Explanation: Each term is multiplied by 3. Next term = 81 × 3 = 243.

Q.48 A cube has total surface area 150 cm^2. What is its side length?

A. 4 cm
B. 5 cm
C. 6 cm
D. 7 cm

Answer	B. 5 cm

Explanation: Total surface area = $6a^2$ = 150, so a^2 = 25 and a = 5 cm.

Q.49 The ratio of boys to girls in a class is 4:5. If there are 36 students, how many girls are there?

A. 16
B. 18
C. 20
D. 24

Answer	C. 20

Explanation: Total parts = 9. Each part = 36/9 = 4. Girls = 5 × 4 = 20.

Q.50 A train covers 180 km in 2.5 hours. What is its speed?

A. 60 km/h
B. 72 km/h
C. 80 km/h
D. 90 km/h

Answer	**B. 72 km/h**

Explanation: Speed = distance/time = 180/2.5 = 72 km/h.

Consolidated Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	C	2	B	3	B	4	C	5	B
6	C	7	C	8	B	9	C	10	D
11	B	12	A	13	B	14	B	15	B
16	C	17	B	18	A	19	B	20	D
21	C	22	A	23	C	24	B	25	C
26	C	27	B	28	A	29	A	30	C
31	B	32	A	33	A	34	C	35	C
36	A	37	B	38	B	39	B	40	C
41	B	42	B	43	B	44	C	45	C
46	C	47	C	48	B	49	C	50	B

Space for Rough Work