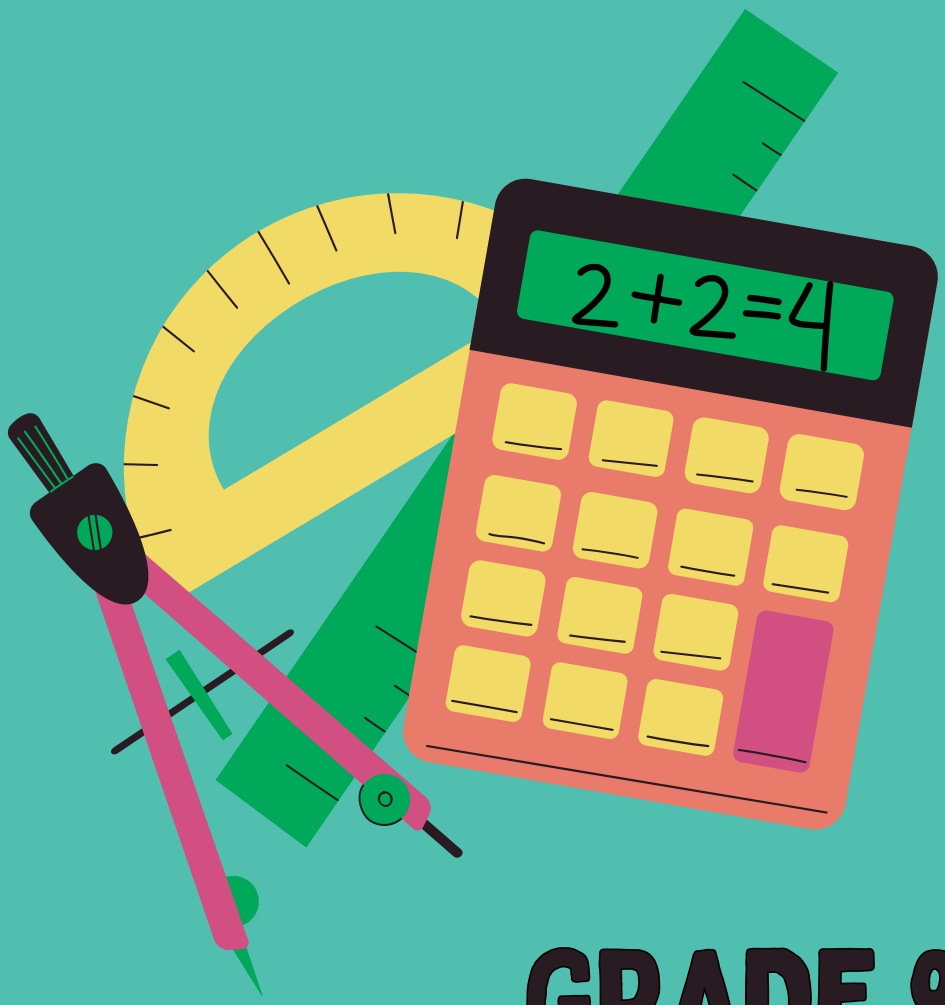
Catso
International Events

MEGA MATH SYLLABUS



GRADE 9 & 10

1. A polygon with five sides is called:

a) Hexagon **b) Pentagon** c) Octagon d) Nonagon

2. The sum of the angles of a quadrilateral is:

a) 180° **b) 360°** c) 540° d) 720°

3. Which triangle has one angle greater than 90°?

a) Acute triangle **b) Obtuse triangle** c) Right triangle d) Scalene triangle

4. The value that occurs most often in a data set is called:

a) Mean b) Median **c) Mode** d) Range

5. A solid with two parallel circular bases is called:

a) Cone **b) Cylinder** c) Prism d) Pyramid

6. A number divisible only by 1 and itself is called:

a) Composite number **b) Prime number**
c) Whole number d) Rational number

7. Which of these angles measures exactly 90°?

a) Acute **b) Right** c) Obtuse d) Reflex

8. A triangle with all sides of different lengths is called:

a) Isosceles b) Equilateral **c) Scalene** d) Right

9. Which is the longest side in a right triangle?

a) Adjacent b) Opposite **c) Hypotenuse** d) Base

10. Which type of data is represented by numbers?

a) Qualitative **b) Quantitative** c) Categorical d) Nominal

11. A straight line passing through two points is called:

a) Ray **b) Line** c) Chord d) Diameter

12. Which part of a fraction is above the line?

a) Denominator **b) Numerator** c) Dividend d) Quotient

13. A polygon with all sides and angles equal is:

a) Irregular polygon **b) Regular polygon** c) Scalene polygon d) Parallelogram

14. Which transformation flips a figure over a line?

a) Translation **b) Reflection** c) Rotation d) Enlargement

15. A solid figure with a flat polygonal base and triangular faces meeting at a point is:

a) Cone **b) Pyramid** c) Cylinder d) Sphere

16. Which number is the multiplicative identity?

a) 0 **b) 1** c) –1 d) 10

17. Which type of number has no fractional part?

a) Rational number **b) Whole number** c) Irrational number d) Decimal

18. The fixed point around which a figure rotates is called:

a) Axis **b) Center of rotation** c) Origin d)Tangent

19. Which triangle has all three angles equal?

a) Scalene b) Isosceles **c) Equilateral** d)Right

20. The study of collecting, organizing, and interpreting data is called:

a) Algebra **b) Statistics** c) Geometry d)Trigonometry

21. The distance around a circle is called:

a) Area **b) Circumference** c) Radius d)Diameter

22. Which side is opposite the right angle in a right triangle?

a) Base **b) Hypotenuse** c) Height d)Median

23. Which angle is greater than 180° but less than 360°?

a) Obtuse **b) Reflex** c) Straight d)Acute

24. A closed plane figure with straight sides is called:

a) Circle **b) Polygon** c) Sphere d)Ellipse

25. The average of a set of values is called:

a) Mode b) Median **c) Mean** d)Range

26. Which property says that a × b = b × a?

a) Associative property **b) Commutative property**

c) Distributive property d) Identity property

27. The distance from the center of a circle to any point on its circumference is:

a) Diameter **b) Radius** c) Chord d) Tangent

28. A triangle with one angle exactly 90° is:

a) Acute triangle **b) Right triangle** c) Obtuse triangle d)Scalenetriangle

29. A polygon with 6 sides is:

a) Pentagon **b) Hexagon** c) Octagon d) Nonagon

30. Which number is the additive identity?

a) 0 b) 1 c) –1 d) 10

31. The number that divides exactly into another number is called:

a) Multiple **b) Factor** c) Dividend d) Product

32. Which type of chart shows data as slices of a circle?

a) Bar chart **b) Pie chart** c) Line graph d) Histogram

33. Which set has no elements?

a) Universal set **b) Empty set** c) Finite set d) Infinite set

34. The longest chord in a circle is the:

a) Radius **b) Diameter** c) Tangent d) Secant

35. Which polygon has all sides equal but not all angles equal?

a) Square **b) Rhombus** c) Rectangle d)Trapezium

36. A line that touches a circle at only one point is called:

a) Chord **b) Tangent** c) Secant d) Radius

37. A quadrilateral with both pairs of opposite sides parallel is called:

a) Trapezium **b) Parallelogram** c) Kite d)Rhombus

38. Which is the sum of probabilities of all possible outcomes?

a) 0 **b) 1** c) Infinity d)Undefined

39. A three-dimensional object that is perfectly round is:

a) Cylinder **b) Sphere** c) Cone d)Hemisphere

40. Which axis in a graph is horizontal?

a) Y-axis **b) X-axis** c) Z-axis d) Origin

41. Which property says that (a + b) + c = a + (b + c)?

a) Commutative property **b) Associative property**
c) Distributive property d) Reflexive property

42. A triangle with two equal sides is called:

a) Scalene **b) Isosceles** c) Equilateral d) Right

43. The outer boundary of a closed figure is called:

a) Area **b) Perimeter** c) Volume d)Circumference

44. Which graph is best for showing change over time?

a) Pie chart **b) Line graph** c) Bar chart d)Histogram

45. Which is a polygon with 10 sides?

a) Octagon **b) Decagon** c) Nonagon d)Dodecagon

46. A number that can be expressed as a ratio of two integers is:

a) Irrational **b) Rational** c) Real d)Imaginary

47. Which line passes through the center of a circle and is twice the radius?

a) Chord **b) Diameter** c) Tangent d) Secant

48. Which side of a right triangle is next to the right angle?

a) Hypotenuse **b) Adjacent side** c) Opposite side d) Median

49. A shape with all sides equal and all angles equal is:

a) Rectangle **b) Square** c) Rhombus d) Kite

50. A quadrilateral with all sides equal and all angles equal to 90° is:

a) Rhombus **b) Square** c) Rectangle d)Parallelogram

51. Which angle measures exactly 180°?

a) Right angle **b) Straight angle** c) Obtuse angle d)Acuteangle

52. The flat surface of a solid figure is called:

a) Edge **b) Face** c) Vertex d) Base

53. Which type of number cannot be expressed as a fraction?

a) Rational number **b) Irrational number** c) Whole number d) Integer

54. The plural of vertex is:

a) Vertexes **b) Vertices** c) Verticals d) Vertes

55. Which term describes the distance around a polygon?

a) Area **b) Perimeter** c) Volume d) Diameter

56. A triangle with angles measuring 30°, 60°, and 90° is called:

a) Scalene triangle **b) Right triangle** c) Isosceles triangle d)Equilateral triangle

57. Which transformation slides a figure without turning it?

a) Reflection **b) Translation** c) Rotation d) Dilation

58. Which property is shown by a + 0 = a?

a) Commutative property **b) Identity property**
c) Associative property d) Distributive property

59. Which is the smallest prime number?

a) 1 **b) 2** c) 3 d) 5

60. The boundary of a circle is called:

a) Area **b) Circumference** c) Radius d) Arc

61. The sum of the angles of a triangle is always:

a) 90° **b) 180°** c) 270° d) 360°

62. A quadrilateral with both pairs of opposite sides equal and parallel is:

a) Kite **b) Parallelogram** c) Trapezium d) Rhombus

63. A triangle with all angles less than 90° is:

a) Right triangle **b) Acute triangle** c) Obtuse triangle d)Scalene triangle

64. The distance between two points is called:

a) Arc **b) Length** c) Perimeter d) Radius

65. A shape with 7 sides is called:

a) Hexagon **b) Heptagon** c) Octagon d) Pentagon

66. Which is the multiplicative inverse of 4?

a) 4 **b) 1/4** c) –4 d) –1/4

67. A flat surface that extends without end in all directions is called:

a) Line **b) Plane** c) Ray d) Edge

68. Which type of angle is formed when two lines are perpendicular?

a) Acute angle **b) Right angle** c) Obtuse angle d)Reflex angle

69. Which shape has exactly one curved surface?

a) Sphere **b) Cone** c) Cylinder d)Cube

70. A bar graph with no spaces between bars is called:

a) Line graph **b) Histogram** c) Pie chart d)Pictograph

71. The line segment joining two points on a curve is called:

a) Tangent **b) Chord** c) Secant d)Diameter

72. Which term describes the likelihood of an event occurring?

a) Mean **b) Probability** c) Frequency d)Ratio

73. Which number is neither prime nor composite?

a) 2 b) 3 **c) 1** d) 0

74. A shape with all sides equal and opposite sides parallel is called:

a) Square **b) Rhombus** c) Rectangle d)Kite

75. Which transformation turns a figure about a fixed point?

a) Reflection b) Translation **c) Rotation** d)Enlargement

76. The distance from the center of a circle to any point on it is called:

a) Diameter **b) Radius** c) Chord d)Tangent

77. Which polygon has all sides and all angles equal?

a) Irregular polygon **b) Regular polygon** c) Scalene polygon d)Isosceles polygon

78. Which solid has no edges or vertices?

a) Cylinder **b) Sphere** c) Cube d)Cone

79. The set {2, 4, 6, 8, …} is an example of:

a) Odd numbers **b) Even numbers** c) Prime numbers d)Composite numbers

80. Which number is the additive inverse of –9?

a) –9 **b) 9** c) 0 d) 1

81. Which quadrilateral has exactly one pair of parallel sides?

a) Parallelogram **b) Trapezium** c) Rhombus d)Rectangle

82. Which shape has two circular bases connected by a curved surface?

a) Cone **b) Cylinder** c) Sphere d)Prism

83. The point where two sides of a polygon meet is called:

a) Edge **b) Vertex** c) Base d)Face

84. Which property says $a \times (b \times c) = (a \times b) \times c$?

a) Commutative property **b) Associative property**
c) Distributive property d) Identity property

85. A polygon with 4 equal sides and no right angles is:

a) Square **b) Rhombus** c) Rectangle d)Kite

86. Which graph is used to compare different categories?

a) Line graph **b) Bar chart** c) Histogram d) Pie chart

87. The outer edge of a circle is called:

a) Radius **b) Circumference** c) Diameter d) Arc

88. Which shape has all faces as rectangles?

a) Cube **b) Cuboid** c) Prism d) Pyramid

89. A polygon with 9 sides is:

a) Octagon **b) Nonagon** c) Decagon d) Heptagon

90. Which angle measures less than 90°?

a) Right angle **b) Acute angle** c) Obtuse angle d) Reflex angle

91. Which term means "parts per hundred"?

a) Ratio **b) Percent** c)Fraction d) Proportion

92. Which shape has three equal sides?

a) Scalene triangle b)Isoscelestriangle

c) Equilateral triangle d)Right triangle

93. A solid with all faces as equal squares is:

a) Cuboid **b) Cube** c)Prism d) Pyramid

94. The sum of probabilities of complementary events is:

a) 0 **b) 1** c) Infinite d) Undefined

95. Which polygon has 3 sides?

a) Rectangle **b) Triangle** c) Pentagon d) Square

96. Which side of a triangle is opposite the smallest angle?

a) Longest side **b) Shortest side** c) Equal side d) Median

97. Which number is known as the identity element for addition?

a) 0 b) 1 c) –1 d) Infinity

98. Which type of data is obtained by counting?

a) Continuous data **b) Discrete data** c) Categorical data d) Nominal data

99. Which is the study of shapes, sizes, and positions?

a) Algebra **b) Geometry** c) Statistics d) Arithmetic

100. The set of whole numbers includes:

a) 1, 2, 3, … **b) 0, 1, 2, 3, …** c) –1, 0, 1, 2 d) All fractions

101. Which polygon has 8 sides?

a) Hexagon **b) Octagon** c) Nonagon d) Decagon

102. The sum of the angles in a pentagon is:

a) 360° **b) 540°** c) 720° d) 900°

103. Which part of a circle is a portion of its circumference?

a) Diameter **b) Arc** c) Chord d) Radius

104. A number that is greater than 0 is called:

a) Negative number **b) Positive number** c) Integer d)Rational number

105. A shape with no sides or vertices is:

a) Triangle b) Polygon **c) Circle** d) Square

106. Which transformation creates a mirror image of a figure?

a) Translation **b) Reflection** c) Rotation d) Scaling

107. Which term describes the total surface enclosed by a 2D shape?

a) Perimeter **b) Area** c) Volume d) Diameter

108. The number that appears in the most data entries is:

a) Mean b) Median **c) Mode** d) Range

109. Which number is the additive inverse of 5?

a) 5 **b) –5** c) 0 d) 1

110. Which quadrilateral has all sides equal and all angles equal to 90°?

a) Rhombus **b) Square** c) Rectangle d) Kite

111. A flat figure made up of straight lines is called:

a) Circle **b) Polygon** c) Ellipse d) Curve

112. Which property says a × b = b × a?

a) Associative property **b) Commutative property**
c) Distributive property d) Reflexive property

113. Which term describes numbers like –3, 0, and 4?

a) Whole numbers **b) Integers** c)Rational numbers d)Irrational numbers

114. A polygon with 12 sides is called:

a) Decagon **b) Dodecagon** c) Nonagon d) Octagon

115. Which angle measures exactly 90°?

a) Obtuse angle **b) Right angle** c) Reflex angle d)Acute angle

116. Which transformation keeps the shape and size but changes position?

a) Rotation **b) Translation** c) Reflection d) Dilation

117. Which line divides a shape into two equal mirror-image halves?

a) Radius **b) Line of symmetry** c) Diameter d) Axis

118. Which polygon has 4 equal sides but not all angles equal?

a) Square **b) Rhombus** c) Rectangle d)Trapezium

119. Which term describes the chance of something happening?

a) Average **b) Probability** c) Ratio d)Proportion

120. Which property says that a × 0 = 0?

a) Identity property **b) Zero property of multiplication**
c) Distributive property d) Associative property

121. Which side of a right triangle is next to the right angle?

a) Opposite side **b) Adjacent side** c) Hypotenuse d) Median

122. The top view of a cylinder looks like a:

a) Rectangle **b) Circle** c) Triangle d) Polygon

123. A three-sided polygon is called:

a) Rectangle **b) Triangle** c) Pentagon d) Hexagon

124. Which term describes an angle measuring less than 90°?

a) Right angle **b) Acute angle** c) Obtuse angle d) Reflex angle

125. The plural of "radius" is:

a) Radiuses **b) Radii** c) Radials d) Radius

126. Which graph is best for showing the proportion of categories?

a) Line graph **b) Pie chart** c) Bar chart d) Histogram

127. Which term describes data that can be counted?

a) Continuous data **b) Discrete data** c) Categorical data d) Nominal data

128. The sum of the angles of a hexagon is:

a) 360° b) 540° **c) 720°** d) 900°

129. Which part of a graph is vertical?

a) X-axis **b) Y-axis** c) Z-axis d) Origin

130. Which type of triangle has two equal sides?

a) Scalene triangle **b) Isosceles triangle** c) Equilateral triangle d) Right triangle

131. Which number is called the multiplicative identity?

a) 0 **b) 1** c) –1 d) 2

132. Which solid shape has a circular base and a curved surface meeting at a point?

a) Cylinder **b) Cone** c) Sphere d) Pyramid

133. The total distance around a figure is called:

a) Area **b) Perimeter** c) Volume d) Radius

134. Which type of number has a fractional part?

a) Integer **b) Decimal number** c) Whole number d)Natural number

135. Which polygon has 13 sides?

a) Dodecagon **b) Tridecagon** c) Octagon d) Nonagon

136. Which number has no reciprocal?

a) 1 **b) 0** c) –1 d) 2

137. The sum of the measures of supplementary angles is:

a) 90° **b) 180°** c) 270° d) 360°

138. Which type of triangle has one angle equal to 90°?

a) Acute triangle **b) Right triangle** c) Scalene triangle d) Equilateral triangle

139. Which polygon has 18 sides?

a) Octagon **b) Octadecagon** c) Decagon d) Hexagon

140. The plural of "axis" is:

a) Axises **b) Axes** c) Axis d) Axions

141. Which property says that a + b = b + a?

a) Associative property **b) Commutative property**
c) Distributive property d) Identity property

142. A polygon with 4 sides is called:

a) Triangle **b) Quadrilateral** c) Pentagon d) Hexagon

143. A train travels 120 km in 2 hours. At the same speed, how long will it take to travel 300 km?

A) 3 h **B) 5 h** C) 6 h D) 7 h

144. The solution of 2x + 5 = 15 is:

A) 3 B) 4 **C) 5** D) 6

145. A square has perimeter 40 cm. What is its area?

A) 80 cm^2 **B) 100 cm^2** C) 120 cm^2 D) 160 cm^2

146. A die is rolled once. Probability of getting an odd number is:

A) 1/6 **B) 1/2** C) 2/3 D) 5/6

147. The roots of $x^2 - 9 = 0$ are:

A) ±2 **B) ±3** C) ±9 D) 0

148. A man walks 5 km north, then 12 km east. Distance from start point = ?

A) 12 km B) 15 km **C) 13 km** D) 17 km

149. If 3 pencils cost 18 rupees, the cost of 7 pencils = ?

A) 36 B) 40 **C) 42** D) 45

150. The mean of numbers 4, 6, 8, 10, 12 = ?

A) 7 **B) 8** C) 9 D) 10

151. A car travels at 60 km/h. How far in 2 hours 30 minutes?

A) 120 **B) 150** C) 160 D) 180

152. The circumference of a circle with radius 7 cm is (π=22/7):

A) 42 **B) 44** C) 46 D) 49

153. If $\sin\theta = 1$, then θ = ?

A) 0° **B) 90°** C) 180° D) 270°

154. Which is a solution of $3x - 2 = 10$?

A) 3 **B) 4** C) 5 D)6

155. A bag has 5 red and 3 blue balls. Probability of picking a red ball?

A) 1/2 **B) 5/8** C) 3/8 D) 2/3

156. A number increased by 25% becomes 100. What is the number?

A) 70 **B) 80** C) 85 D)90

157. The distance-time graph of uniform speed is a:

A) Curve **B) Straight line** C) Parabola D)Circle

158. If $a^2 = 64$, then a = ?

A) ±6 **B) ±8** C) ±10 D)±12

159. Volume of a cube with side 5 cm is:

A) 100 B) 110 **C) 125** D)150

160. Solve: $x/3 = 7$

A) 14 **B) 21** C) 28 D) 35

161. A shopkeeper gives 20% discount on Rs. 500. Final price?

A) 350 **B) 400** C) 420 D) 440

162. The next prime after 47 is:

A) 49 **B) 53** C) 57 D) 59

163. If $(x - 3)(x + 3) = ?$

A) $x^2 + 9$ **B) $x^2 - 9$** C) $x^2 - 6x$ D) $x^2 + 6x$

164. A card is drawn from a deck. Probability of a king = ?

A) 1/26 **B) 1/13** C) 2/13 D) 1/12

165. The slope of line $y = 3x + 2$ is:

A) 2 **B) 3** C) –3 D) 1/3

166. Median of 8, 12, 15, 20, 25 is:

A) 12 **B) 15** C) 20 D) 25

167. Area of triangle with base 12 cm and height 8 cm is:

A) 48 cm^2 B) 96 cm^2 C) 100 cm^2 D) 120 cm^2

168. If $5x = 60$, then x = ?

A) 10 **B) 12** C) 15 D) 20

169. A sphere has radius 3 cm. Volume = ? (π=3.14)

A) 100 B) 110 **C) 113.04** D) 120

170. Simplify: (2/5) + (3/10)

A) 1/2 **B) 7/10** C) 9/10 D) 1

171. Which is a quadratic equation?

A) $2x + 1 = 0$ **B) $x^2 + 2x + 1 = 0$** C) $3x - 4 = 0$ D) $y = 2x$

172. In a right triangle, if base=9, height=12, hypotenuse=?

A) 14 **B) 15** C) 16 D) 17

173. 30% of 200 = ?

A) 40 **B) 60** C) 80 D) 100

174. If a rectangle has length 10 and width 6, its area = ?

A) 50 **B) 60** C) 70 D) 80

175. Which number is divisible by 9?

A) 23 **B) 36** C) 40 D) 95

176. Solve: $2x - 7 = 9$

A) 6 **B) 8** C) 9 D) 10

177. Which point lies on $y = 2x$?

A) (1,1) B) (2,1) **C) (2,4)** D) (3,5)

178. A triangle with angles 50°, 60°, and 70° is:

A) Equilateral **B) Scalene** C) Isosceles D) Right

179. Area of circle with diameter 14 cm is (π=22/7):

A) 120 B) 140 **C) 154** D) 160

180. A student scored 75 out of 100. Percentage = ?

A) 70% **B) 75%** C) 80% D) 85%

181. If $x^2 = 121$, then x = ?

A) ±9 B) ±10 **C) ±11** D) ±12

182. A triangle has angles 70°, 50°, and x°. What is the value of x?

A) 50° **B) 60°** C) 70° D) 80°

183. A car travels 180 km in 3 h. Its speed = ?

A) 50 **B) 60** C) 70 D) 80

184. 1 kilometre = how many meters?

A) 10 B) 100 **C) 1000** D) 10,000

185. 2/3 of 90 = ?

A) 50 **B) 60** C) 65 D) 70

186. If $\tan \theta = 1$, then θ = ?

A) 30° **B) 45°** C) 60° D) 90°

187. Solve: $\sqrt{x} = 7$

A) 36 B) 42 **C) 49** D) 56

188. Perimeter of rectangle 8 × 6 = ?

A) 24 B) 26 **C) 28** D) 30

189. If 2x = 14, then x = ?

A) 5 **B) 7** C) 8 D) 9

190. Which sequence is arithmetic?

A) 2,4,8,16 **B) 3,6,9,12** C) 1,2,4,8 D)5,25,125

191. Mode of 2, 4, 4, 5, 6, 6, 6, 7 = ?

A) 4 **B) 6** C) 7 D) 5

192. The diagonals of a rectangle are always:

A) Unequal **B) Equal** C) Parallel D)Perpendicular

193. Which is the value of 2^3?

A) 6 **B) 8** C) 9 D) 12

194. A speed of 72 km/h is equal to how many m/s?

A) 15 **B) 20** C) 25 D) 30

195. A shop sells a shirt for Rs. 400 after 20% discount. Original price?

A) 420 B) 440 **C) 500** D) 520

196. Which is irrational?

A) √4 B) √9 **C) √2** D) √16

197. The gradient of a line perpendicular to y=2x is:

A) −2 **B) −1/2** C) 1/2 D) 2

198. If a = 2, b = 3, then $a^2 + b^2$ = ?

A) 9 **B) 13** C) 14 D) 16

199. Which triangle has all sides equal?

A) Scalene B) Isosceles **C) Equilateral** D) Right

200. Which is the largest 3-digit number divisible by 5?

A) 995 B) 996 C) 990 D) 999

201. Simplify: 4x – 2x + 7

A) 2x + 6 **B) 2x + 7** C) 4x + 7 D) 2x – 7

202. The solution set of $x^2 = 25$ is:

A) {–4, 4} B) {–5, 4} **C) {–5, 5}** D) {5, 25}

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