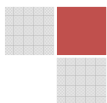


Quantitative Aptitude

101. If a number is increased by 25% and the resulting number is decreased by 25%, then the percentage increase or decrease finally is
 (A) increased by $6\frac{1}{4}\%$
 (B) increased by 6%
 (C) no change
 (D) decreased by $6\frac{1}{4}\%$
102. A reduction of 20% in the price of rice enables a customer to purchase 12.5 kg more for ₹ 800. The original price of rice per kg is
 (A) ₹ 12 (B) ₹ 15
 (C) ₹ 14 (D) ₹ 16
103. In two alloys A and B, the ratio of zinc to tin is 5 : 2 and 3 : 4 respectively. Seven kg of the alloy A and 21 kg of the alloy B are mixed together to form a new alloy. What will be the ratio of zinc and tin in the new alloy?
 (A) 2 : 3 (B) 1 : 1
 (C) 2 : 1 (D) 1 : 2
104. If A : B = 3 : 4 and B : C = 6 : 5, then C : A is
 (A) 8 : 9 (B) 9 : 8
 (C) 10 : 9 (D) 9 : 10
105. If a, b are rationals and $a\sqrt{2} + b\sqrt{3} = \sqrt{98} + \sqrt{108} - \sqrt{48} - \sqrt{72}$, then the values of a, b are respectively
 (A) 2, 1 (B) 2, 3
 (C) 1, 2 (D) 1, 3
106. The ratio of boys and girls in a college is 5 : 3. If 50 boys leave the college and 50 girls join the college, the ratio becomes 9 : 7. The number of boys in the college is
 (A) 500 (B) 600
 (C) 300 (D) 400
107. When n is divided by 6, the remainder is 4. When 2n is divided by 6, the remainder is
 (A) 4 (B) 1
 (C) 2 (D) 0
108. The value of $\frac{1}{20} + \frac{1}{30} + \frac{1}{42} + \frac{1}{56} + \frac{1}{72} + \frac{1}{90}$ is
 (A) $\frac{3}{20}$ (B) $\frac{7}{20}$
 (C) $\frac{1}{10}$ (D) $\frac{3}{5}$
109. Let $a = \frac{1}{2-\sqrt{3}} + \frac{1}{3-\sqrt{8}} + \frac{1}{4-\sqrt{15}}$. Then we have
 (A) a = 18
 (B) a = 9
 (C) a < 18 but a ≠ 9
 (D) a > 18
110. The smallest among the numbers 2^{250} , 3^{150} , 5^{100} and 4^{200} is
 (A) 3^{150} (B) 2^{250}
 (C) 4^{200} (D) 5^{100}
111. The greatest of the following numbers 0.16, $\sqrt{0.16}$, $(0.16)^2$, 0.04 is
 (A) 0.04 (B) $(0.16)^2$
 (C) 0.16 (D) $\sqrt{0.16}$
112. If $\left[4 - \frac{5}{1 + \frac{1}{3 + \frac{1}{2 + \frac{1}{4}}}} \right]$ th part of a journey takes 10 minutes, then to complete $\frac{3}{5}$ th of that journey, it will take
 (A) 48 minutes (B) 36 minutes
 (C) 40 minutes (D) 45 minutes

113. Two trains 180 metres and 120 metres in length are running towards each other on parallel tracks, one at the rate 65 km/hour and another at 55 km/hour. In how many seconds will they be clear of each other from the moment they meet ?
 (A) 12 (B) 15
 (C) 6 (D) 9
114. Three men can complete a piece of work in 6 days. Two days after they started the work, 3 more men joined them. How many days will they take to complete the remaining work ?
 (A) 3 days (B) 4 days
 (C) 1 day (D) 2 days
115. If $x + \frac{1}{x+1} = 1$, then $(x+1)^5 + \frac{1}{(x+1)^5}$ equals
 (A) 4 (B) 8
 (C) 1 (D) 2
116. If $\frac{1}{a} - \frac{1}{b} = \frac{1}{a-b}$, then the value of $a^3 + b^3$ is
 (A) 1 (B) 2
 (C) 0 (D) -1
117. If $a^2 + b^2 + c^2 = ab + bc + ca$, then $\frac{a+c}{b}$ is equal to
 (A) 3 (B) 4
 (C) 1 (D) 2
118. If the graphs of the equations $x + y = 0$ and $5y + 7x = 24$ intersect at (m, n) , then the value of $m + n$ is
 (A) 0 (B) -1
 (C) 2 (D) 1
119. The average age of a class of 35 students is 15 years. If the teacher's age is also included the average age increases by one year. Furthermore, if the average age of the teacher's family having a wife and a son is 40 years and the son's age is 80% less than his mother's age, then the age of the teacher's wife is
 (A) 47.5 years (B) 55.5 years
 (C) 57.5 years (D) 50 years
120. If the amount is $3\frac{3}{8}$ times the sum after 3 years at compound interest compounded annually, then the rate of interest per annum is
 (A) $16\frac{2}{3}\%$ (B) $33\frac{1}{3}\%$
 (C) 25% (D) 50%
121. A shopkeeper sells an article at 15% gain. Had he sold it for ₹ 18 more, he would have gained 18%. The cost price (in ₹) of the article is
 (A) 600 (B) 350
 (C) 540 (D) 318
122. A cloth merchant on selling 33 metres of cloth obtains a profit equal to the selling price of 11 metres of cloth. The profit is
 (A) 50% (B) 11%
 (C) 40% (D) 22%
123. A single discount equivalent to successive discounts of 20%, 10% and 5% is
 (A) 31.6% (B) 36.1%
 (C) 35% (D) 35.6%
124. A, B and C started a business with their investments in the ratio 1 : 2 : 4. After 6 months A increased his capital by 50% and B invested twice the amount as before, while C withdrew $\frac{1}{4}$ th of his own investment. The ratio of their profits at the end of the year was
 (A) 6 : 9 : 17 (B) 5 : 14 : 16
 (C) 10 : 5 : 9 (D) 5 : 12 : 14

125. P and Q are centres of two circles with radii 9 cm and 2 cm respectively, where $PQ = 17$ cm. R is the centre of another circle of radius x cm, which touches each of the above two circles externally. If $\angle PRQ = 90^\circ$, then the value of x is
- (A) 7 cm (B) 8 cm
(C) 4 cm (D) 6 cm
126. The area of a rhombus is 216 cm^2 and the length of its one diagonal is 24 cm. The perimeter (in cm) of the rhombus is
- (A) 120 (B) 100
(C) 52 (D) 60
127. The perimeter of an isosceles triangle is 544 cm and each of the equal sides is $\frac{5}{6}$ times the base. What is the area (in cm^2) of the triangle?
- (A) 31872 (B) 13872
(C) 38172 (D) 18372
128. A metallic sphere of radius 10.5 cm is melted and then recast into small cones each of radius 3.5 cm and height 3 cm. The number of cones thus formed is
- (A) 112 (B) 126
(C) 140 (D) 132
129. If the ratio of the diameters of two right circular cones of equal height be 3 : 4, then the ratio of their volumes will be
- (A) 16 : 9 (B) 27 : 64
(C) 3 : 4 (D) 9 : 16
130. A right pyramid stands on a square base of diagonal $10\sqrt{2}$ cm. If the height of the pyramid is 12 cm, the area (in cm^2) of its slant surface is
- (A) 360 (B) 260
(C) 520 (D) 420
131. If $x = 5 - \sqrt{21}$, then the value of $\frac{\sqrt{x}}{\sqrt{32-2x} - \sqrt{21}}$ is
- (A) $\frac{1}{\sqrt{2}}(\sqrt{7} + \sqrt{3})$ (B) $\frac{1}{\sqrt{2}}(7 - \sqrt{3})$
(C) $\frac{1}{\sqrt{2}}(\sqrt{3} - \sqrt{7})$ (D) $\frac{1}{\sqrt{2}}(\sqrt{7} - \sqrt{3})$
132. In ΔABC , the internal bisectors of $\angle ABC$ and $\angle ACB$ meet at I and $\angle BAC = 50^\circ$. The measure of $\angle BIC$ is
- (A) 125° (B) 130°
(C) 105° (D) 115°
133. BL and CM are medians of ΔABC right-angled at A and $BC = 5$ cm. If $BL = \frac{3\sqrt{5}}{2}$ cm, then the length of CM is
- (A) $10\sqrt{2}$ cm (B) $4\sqrt{5}$ cm
(C) $2\sqrt{5}$ cm (D) $5\sqrt{2}$ cm
134. In ΔABC , D and E are the points of sides AB and BC respectively such that $DE \parallel AC$ and $AD : DB = 3 : 2$. The ratio of area of trapezium ACED to that of ΔBED is
- (A) 4 : 21 (B) 21 : 4
(C) 4 : 15 (D) 15 : 4
135. A quadrilateral ABCD circumscribes a circle and $AB = 6$ cm, $CD = 5$ cm and $AD = 7$ cm. The length of side BC is
- (A) 3 cm (B) 6 cm
(C) 4 cm (D) 5 cm



136. From a tower 125 metres high, the angles of depression of two objects, which are in horizontal line through the base of the tower, are 45° and 30° and they are on the same side of the tower. The distance (in metres) between the objects is
 (A) $125/(\sqrt{3} - 1)$ (B) $125(\sqrt{3} + 1)$
 (C) $125\sqrt{3}$ (D) $125(\sqrt{3} - 1)$
137. If each interior angle of a regular polygon is 150° , the number of sides of the polygon is
 (A) 10 (B) 15
 (C) 8 (D) None of these
138. If the altitude of a right prism is 10 cm and its base is an equilateral triangle of side 12 cm, then its total surface area (in cm^2) is
 (A) 360 (B) $72(5 + \sqrt{3})$
 (C) $(5 + 3\sqrt{3})$ (D) $36\sqrt{3}$
139. The value of $\tan 10^\circ \tan 15^\circ \tan 75^\circ \tan 80^\circ$ is
 (A) -1 (B) 2
 (C) 0 (D) 1
140. The minimum value of $4 \tan^2 \theta + 9 \cot^2 \theta$ is equal to
 (A) 12 (B) 13
 (C) 0 (D) 5
141. If $\sin 7x = \cos 11x$, then the value of $\tan 9x + \cot 9x$ is
 (A) 3 (B) 4
 (C) 1 (D) 2
142. If $\tan^2 \alpha = 1 + 2 \tan^2 \beta$ (α, β are positive acute angles), then $\sqrt{2} \cos \alpha - \cos \beta$ is equal to
 (A) 1 (B) -1
 (C) 0 (D) $\sqrt{2}$
143. Two pipes X and Y can fill a cistern in 24 minutes and 32 minutes respectively. If both the pipes are opened together, then after how much time (in minutes) should Y be closed so that the tank is full in 18 minutes?
 (A) 6 (B) 5
 (C) 10 (D) 8
144. The length and breadth of a rectangular field are in the ratio 7 : 4. A path 4 m wide running all round outside has an area of 416 m^2 . The breadth (in m) of the field is
 (A) 15 (B) 16
 (C) 28 (D) 14
145. If $a + b + c = 0$, then $a^3 + b^3 + c^3$ is equal to
 (A) $2abc$ (B) $3abc$
 (C) $a + b + c$ (D) abc
146. Two numbers 11284 and 7655, when divided by a certain number of three digits, leaves the same remainder. The sum of digits of such a three-digit number is
 (A) 10 (B) 11
 (C) 8 (D) 9

Directions : Study the table and answer questions no. 147 and 148.

Height (in cm)	Number of girls
less than 140	4
less than 145	11
less than 150	29
less than 155	40
less than 160	46
less than 165	51

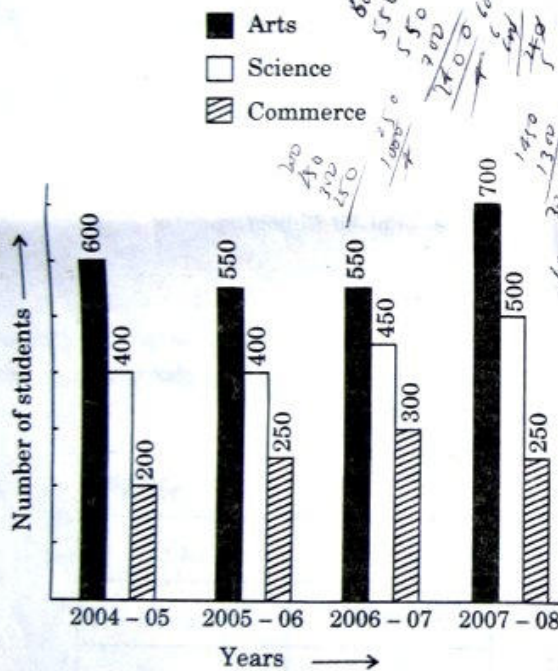
147. Average height (in cm) of the girls whose heights are 155 cm and above is about

- (A) 160.4 (B) 162.6
(C) 158.7 (D) 159.8

148. The number of girls whose height is above 150 cm is

- (A) 86 (B) 97
(C) 22 (D) 29

Directions : Student's strength of a college in Arts, Science and Commerce from 2004 - 05 to 2007 - 08 sessions are shown in the following bar graph. Study the graph and answer questions no. 149 and 150.



149. The increase in Science students in 2007 - 08 over 2006 - 07 was

- (A) 16.7% (B) 18.2%
(C) 10.1% (D) 11.1%

150. The ratio of average number of students in Arts to the average number of students in Commerce is

- (A) 7 : 4 (B) 48 : 35
(C) 12 : 5 (D) 10 : 7

FOR VISUALLY HANDICAPPED CANDIDATES ONLY

147. If $\left(x + \frac{1}{x}\right)^2 = 3$, then the value of

$x^{72} + x^{60} + x^{48} + x^{36}$ is

- (A) 4 (B) 8
(C) 0 (D) 2

148. If $a^x = b$, $b^y = c$, $c^z = a$, then the value of $xyz = ?$

- (A) abc (B) $\frac{1}{abc}$
(C) 0 (D) 1

149. Let $a = \sqrt[3]{2} + \sqrt[3]{3} + 1$, then the value of $\frac{[(a-1)^3 - 5]^3}{(a-1)^3}$ is

- (A) 163 (B) 164
(C) 165 (D) 162

150. If $2x = a + \sqrt{\frac{4b^3 - a^3}{3a}}$ and

$2y = a - \sqrt{\frac{4b^3 - a^3}{3a}}$, then the value of $x^3 + y^3$ is

- (A) a^3 (B) b^3
(C) a (D) b

