

Important CTET Maths Question and Answers with Solution

- Q1.** If $\frac{2}{3}$ of $\frac{2}{5}$ of $\frac{2}{7}$ of a number is equal to 400, then what is the value of the number?
(a) 5250
(b) 1050
(c) 4570
(d) 3640
- Q2.** What is the value of $(2004)^2 - (2000)^2$?
(a) 16016
(b) 16012
(c) 16008
(d) 16020
- Q3.** What is the difference of the largest three digit number and the smallest two digit number?
(a) 990
(b) 989
(c) 988
(d) 900
- Q4.** A boy added all natural numbers from 1 to 10, however he added one number twice due to which the sum became 61. What is that number which he added twice?
(a) 6
(b) 2
(c) 1
(d) 4
- Q5.** If the average of 20, 24, 23, 19, P and Q is 25, then what is the average of P and Q?
(a) 31
(b) 37
(c) 32
(d) 35
- Q6.** If the radius of a circle is decreased by 10 percent, then what will be the percentage decrease in the area of circle?
(a) 20 percent
(b) 19 percent
(c) 21 percent
(d) 22 percent

- Q7.** An article is bought for Rs. 880 and is sold at 30 percent loss. What is the selling price of the article?
(a) Rs.616
(b) Rs.726
(c) Rs.656
(d) Rs.608
- Q8.** The ratio of P, Q and R is 6: 5: 9 respectively. If their sum is 400. then what is the difference between P and R?
(a) 100
(b) 60
(c) 80
(d) 70
- Q9.** A sum of Rs. 5600 is invested in a scheme of simple interest. It becomes Rs. 7000 in 5 years. How much will this sum become in 4 years?
(a) Rs.6240
(b) Rs7800
(c) Rs.6720
(d) Rs.6700
- Q10.** A car is moving at the speed of 45 km/hr covers a certain distance in 4 hours. If the same distance is to be covered in 6 hours, then what will be the speed of the car?
(a) 34 km/hr
(b) 30 km/hr
(c) 40 km/hr
(d) 36 km/hr
- Q11.** B and C alone can complete a work in 5 days and 15 days respectively. They began the work together but B left the work after some days and C completed the remaining work alone in 3 days. After how many days from the beginning B left the work?
(a) 5 days
(b) 4 days
(c) 1.5 days
(d) 3 days
- Q12.** Length of the diagonal of a square is 40 cm. What is the area of this square?
(a) $400\sqrt{2}cm^2$
(b) $1600 cm^2$
(c) $800 cm^2$
(d) $400 cm^2$
- Q13.** Length of a cuboid is thrice of its height. Breadth of cuboid is half of the sum of its height and length. If five times of the breadth is equal to 100 cm. then what is the total surface area of the cuboid?

- (a) 900 cm^2
- (b) 1800 cm^2
- (c) 1100 cm^2
- (d) 2200 cm^2

Q14. If $(5 + 3\sqrt{2})^2 = 43 + Q\sqrt{2}$, then what is the value of Q?

- (a) 15
- (b) 20
- (c) 30
- (d) 40

Q15. What is the value of $1^3 + 2^3 + \dots + 10^3$?

- (a) 3025
- (b) 2755
- (c) 3315
- (d) 2305

Q16. Which is the smallest three digit number which when increased by 6 becomes divisible by both 4 and 6?

- (a) 112
- (b) 114
- (c) 116
- (d) 102

Q17. The sum of a natural number and its positive square root is 182. What is the value of the number?

- (a) 144
- (b) 169
- (c) 125
- (d) 121

Q18. What is the value of positive square root of $54 + 14\sqrt{5}$?

- (a) $3 + 2\sqrt{5}$
- (b) $2 + 2\sqrt{5}$
- (c) $8 + \sqrt{5}$
- (d) $7 + \sqrt{5}$

Q19. If the ratio of marked price and selling price of an article is 3 : 2 respectively, then what is the discount percentage?

- (a) 75 percent
- (b) 33.33 percent
- (c) 50 percent
- (d) 60 percent

- Q20.** If P percent of P is 225, then what is the value of P?
(a) 22500
(b) 22550
(c) 20500
(d) 20050
- Q21.** If $\frac{6}{7}$ of 35 percent of a number is 330, then what is the number?
(a) 1100
(b) 1150
(c) 1200
(d) 1210
- Q22.** Suresh sells a car at the loss of 36 percent. What will be the ratio of cost price to selling price?
(a) 16 : 15
(b) 20 : 13
(c) 25 : 16
(d) 5 : 4
- Q23.** The angles of a triangle are in the ratio 7 : 6 : 5. What is the largest angle of the triangle?
(a) 90 degree
(b) 70 degree
(c) 105 degree
(d) 75 degree
- Q24.** Rs. 10000 is divided among P, Q and R in the ratio of 7 : 8 : 10 respectively. What is the share of Q?
(a) Rs. 2400
(b) Rs. 3200
(c) Rs. 2800
(d) Rs. 4000
- Q25.** What is that yearly rate of simple interest at which a sum of money becomes three times of itself in 40 years?
(a) 5 percent
(b) 5.60 percent
(c) 6 percent
(d) 7.5 percent
- Q26.** If Shyam is moving at the speed of 28 km/hr and he can cross a bridge in 6 minutes, then what is the length of the bridge?
(a) 2.2 km
(b) 2.8 km
(c) 3.2 km
(d) 2.6 km

- Q27.** A runner starts running from a point at 6:00 am at the speed of 5 km/hr. Second runner starts from the same point at 8:00 am in the same direction with a speed of 10 km/hr. At what time will the second runner will overtake the first runner?
- (a) 10:00 am
(b) 12:00 pm
(c) 1:00 pm
(d) 11:00 am
- Q28.** Two taps A and B can fill a tank alone in 6 hours and 9 hours respectively while a third tap C alone can empty the same tank in 18 hours. If all the three taps are opened together, then in how many hours the tank will be filled?
- (a) 4.5 hours
(b) 5 hours
(c) 3.5 hours
(d) 6 hours
- Q29.** Length of the one diagonal of a rhombus is 30 cm. If the area of the rhombus is 300 cm^2 , then what will be length of the other diagonal?
- (a) 18 cm
(b) 25 cm
(c) 20 cm
(d) 15cm
- Q30.** Which of the following statement is correct?
- I. If side of a cube is 45 cm, then total surface area of this cube is 12150 cm^2 .
II. Radius of base and height of a cylinder are 7 cm and 12 cm respectively. Total surface area of this cylinder is 682 cm^2 .
- (a) Only I
(b) Only II
(c) Both I and II
(d) Neither I nor II

Solutions

S1. Ans.(a)

Sol. $\frac{2}{3} \times \frac{2}{5} \times \frac{2}{7} \times x = 400$

$X = 5250$

S2. Ans.(a)

Sol. $(2004)^2 - (2000)^2 = (2004 + 2000)(2004 - 2000) = 4004 \times 4 = 16016$

S3. Ans.(b)

Sol. $(999-10) = 989$

S4. Ans.(a)

Sol. $1+2+3+4+5+6+7+8+9+10+x = 61$

$55+x = 61$

$X = 6$

S5. Ans.(c)

Sol. $(20+24+23+19+P+Q)/6 = 25$

$86+P+Q = 150$

$P+Q = 150-86 = 64$

Average of $(P+Q) = 32$

S6. Ans.(b)

Sol. $(-10\%-10\%+1\%) = -19\%$

S7. Ans.(a)

Sol. $SP = 880 \times 70\% = \text{Rs. } 616$

S8. Ans.(b)

Sol. $P:Q:R = 6:5:9$

$6x+5x+9x = 400$

$20x = 400$

$X = 20$

$R-P = 9x-6x = 3x = 3 \times 20 = 60$

S9. Ans.(c)

Sol. $SI = prt/100$

$1400 = 5600 \times r \times \frac{5}{100}$

$R = 5\%$

Now $SI = 5600 \times 5 \times \frac{4}{100} = 1120$

Total amount = Principal + Interest

Total amount = $5600 + 1120 = 6720$

S10. Ans.(b)

Sol. distance = $45 \times 4 = 180 \text{ km}$

Now Speed = $180/6 = 30 \text{ km/hr}$

S11. Ans.(d)

Sol. work rate of B = $1/5$ days and C = $1/15$ days

Work completed by C in 3 days = $3 \times \frac{1}{15} = \frac{1}{5}$

Work completed by B and C together = $1 - \frac{1}{5} = \frac{4}{5}$

B work done = x days

$\left(\frac{1}{5} + \frac{1}{15}\right)x = \frac{4x}{15} = \frac{4}{5}$

$X = 3 \text{ days}$

S12. Ans.(c)

Sol. The area of square = $d_1 \times \frac{d_2}{2} = 40 \times \frac{40}{2} = 800 \text{ cm}^2$

S13. Ans.(d)

Sol. According to question

$$l = 3h, b = \frac{h+l}{2} \text{ and } 5b = 100 \text{ or } b = 20 \text{ cm}$$

$$b = \frac{h+3h}{2} = 4h/2 = 2h$$

Where $2h = 20$

$h = 10 \text{ cm}$

$l = 3 \times 10 = 30 \text{ cm}$

Total Surface Area = $2(30 \times 20 + 20 \times 10 + 10 \times 30)$

Total Surface Area = $2(600 + 200 + 300)$

Total Surface Area = $2(1100) = 2200 \text{ cm}^2$

S14. Ans.(c)

Sol. $(5 + 3\sqrt{2})^2 = 43 + Q\sqrt{2}$

$$25 + 18 + 30\sqrt{2} = 43 + Q\sqrt{2}$$

$$43 + 30\sqrt{2} = 43 + Q\sqrt{2}$$

$Q = 30$

S15. Ans.(a)

Sol. $1^3 + 2^3 + \dots + 10^3$

$$S_n = \left(\frac{n(n+1)}{2}\right)^2 = \left(\frac{10(10+1)}{2}\right)^2 = (55)^2 = 3025$$

S16. Ans.(d)

Sol. The LCM of 4 and 6 is 12.

From option (d)

$102 + 6 = 108$ divisible by 12

S17. Ans.(b)

Sol. Let's denote the natural number as x and its positive \sqrt{x} .

According to the question

$$x + \sqrt{x} = 182$$

From option (b) $x = 169$

$$169 + \sqrt{169} = 169 + 13 = 182$$

S18. Ans.(d)

Sol. $54 + 14\sqrt{5} = 49 + 5 + 2 \times 7 \times \sqrt{5} = (7 + \sqrt{5})^2$

Square root of $(7 + \sqrt{5})^2 = 7 + \sqrt{5}$

S19. Ans.(b)**Sol.** MP = 3x and SP = 2x

$$\text{discount}\% = \frac{3x-2x}{3x} \times 100 = \frac{x}{3x} \times 100 = 33.33\%$$

S20. Ans.(a)**Sol.** According to question

$$P \times P\% = 225$$

$$P^2 = 22500$$

S21. Ans.(a)

$$\text{Sol. } \frac{6}{7} \times 35\% \times x = 330$$

$$\frac{5}{100} \times x = 55$$

$$x = 1100$$

S22. Ans.(c)**Sol.** Let the cost price (CP) of the car = x

$$SP = x - 0.36x = 0.64x$$

$$\text{Ratio of CP to SP} = \frac{x}{0.64x} = \frac{100}{64} = 25:16$$

S23. Ans.(b)**Sol.** The angles of a triangle are in the ratio 7 : 6 : 5.

$$7x+6x+5x = 180^\circ$$

$$18x = 180^\circ$$

$$x = 10^\circ$$

the largest angles = 70°

S24. Ans.(b)

$$\text{Sol. Q's share} = \frac{8}{25} \times 10000 = \text{Rs. } 3200$$

S25. Ans.(a)

$$\text{Sol. } A=P(1+rt)$$

the amount A is three times the principal P.

$$3P=P(1+rt)$$

Given t=40 years and A=3P

$$3P=P(1+40r)$$

$$2=40r$$

$$r = \frac{1}{20} = .05 \times 100 = 5\%$$

S26. Ans.(b)**Sol.** Speed = distance/time

Given S = 28 km/hr and t = 6/60 hr = 0.1 hr

$$28 = \frac{d}{0.1}$$

$$d = 2.8 \text{ km}$$

S27. Ans.(a)**Sol.** $D1 = \text{Speed (of first runner)} \times \text{Time (head start)}$

$$D1 = 5 \text{ km/hr} \times 2 \text{ hours} = 10 \text{ km}$$

Relative Speed = Speed (of second runner) - Speed (of first runner)

$$\text{Relative Speed} = 10 \text{ km/hr} - 5 \text{ km/hr} = 5 \text{ km/hr}$$

$$T = \text{Distance to Cover (by second runner)} / \text{Relative Speed} \quad T = 10/5 = 2 \text{ hours}$$

$$\text{Overtake Time} = \text{Start Time (of second runner)} + \text{Time to Overtake time} = 8:00 \text{ am} + 2 \text{ hours} = 10:00 \text{ am}$$

S28. Ans.(a)

Sol. $\frac{1}{A} + \frac{1}{B} + \frac{1}{C} = \frac{1}{6} + \frac{1}{9} - \frac{1}{18} = \frac{3+2-1}{18} = \frac{4}{18} = \frac{2}{9}$

Time to fill the tank = $\frac{1}{\frac{2}{9}} = \frac{9}{2} = 4.5 \text{ hours}$

S29. Ans.(c)

Sol. Area of rhombus = $\frac{1}{2}d_1d_2$

$$300 = \frac{1}{2}(30)d_2$$

$$d_2 = 20 \text{ cm}$$

S30. Ans.(a)

Sol. $a = 45 \text{ cm}$

Total surface of area = $6a^2 = 6(45)^2 = 12150 \text{ cm}^2$

