

CTET Paper 2 Previous Year Important Questions – Mathematics

Q1. To develop skill of counting among children, which one of the following is not required to be learned as pre-number concept?

- (a) One to one correspondence
- (b) Seriation
- (c) Reciting number names randomly
- (d) Creating groups

Q2. On asking a child "What is area?", he/she answered length x breadth. What can you say about the child's understanding about the concept of area?

- (a) The child has no idea about the concept of area.
- (b) The child used the area of rectangle as general idea of area of any closed shape.
- (c) The child is right in saying area is length \times breadth.
- (d) The child is confused between the concept of area and peri-meter.

Q3. Which one of the following statements is true with respect to mathematics learning?

- (a) Mathematics is a difficult subject to learn.
- (b) Generally girls are weaker in mathematics.
- (c) Everybody can learn mathematics.
- (d) Mathematics can only be learnt by rigorous practice.

Q4. To teach the Pythagoras theorem, a teacher has distributed a sheet on which four right-angled triangles were drawn and asks the child to find the relationship between the sides of a triangle.

In the above situation, the teacher used—

- (a) inductive method
- (b) deductive method
- (c) lecture method
- (d) laboratory method


Q5. Which one of the following statements is not true about 'concept maps'?

- (a) Concept maps represent a collection of interconnected concepts and links connecting them.
- (b) Concept maps should be / constructed by teachers only.
- (c) Concept maps are hierarchical in nature.
- (d) Concept maps help in linking prior knowledge to new instruction.

Q6. $\frac{2}{3} + \frac{4}{5}$ is-

- (a) $\frac{6}{8}$
- (b) $1\frac{6}{15}$
- (c) $1\frac{7}{15}$
- (d) $\frac{8}{15}$

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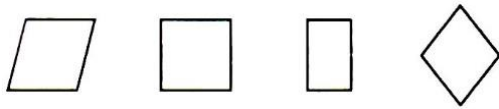


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Q7. For the given shapes, which one of the following statements is not correct?



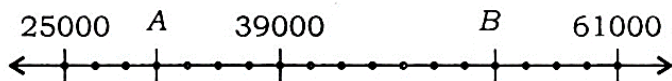
- (a) All are parallelograms
- (b) One of them is not a parallelogram.
- (c) Two of them are rhombuses.
- (d) Two of them are rectangles.

Q8. Which one of the following represents the number 'eleven thousand eleven hundred eleven'?

- (a) 111111
- (b) 12111
- (c) 11000110011
- (d) XIXIXI

Q9. The points A and B represent numbers on a number line as shown below :

25000 A 39000 B 61000



The distance between the points A and B is-

- (a) 29000 units
- (b) 84000 units
- (c) 22 units
- (d) 22000 units

Q10. How many packets of $\frac{1}{16}$ kg sugar can be made from $3\frac{1}{4}$ kg of sugar?

- (a) 52
- (b) 48
- (c) 12
- (d) 64

Q11. Which of the following statements reflects a desirable assessment practice in the context of mathematics learning?

- (a) Incorrect answers of children should largely be ignored because we need to focus on children's strengths.
- (b) Only paper-pencil tasks are suited to assess students because they require precise answers.
- (c) Holding conversations and one to one discussion with children can also be helpful in assessing them.
- (d) Assessment should be product oriented and focus on the right answer of the child.

Q12. Which of the following statements is true of learning mathematics?

- (a) Informal algorithms are inferior to formal mathematics.
- (b) Everyone can learn and succeed in mathematics.
- (c) Girls need extra attention because they are weaker in mathematics.
- (d) Mathematics is a specialized subject meant for a select few.

Q13. The role of proportional reasoning in understanding the concept related to ratio and proportion was highlighted by

- (a) Lev Vygotsky
- (b) Van Hiele
- (c) Zoltan Dienes
- (d) Jean Piaget

Q14. A student is not able to solve those word problems which involve transposition in algebra. The best remedial strategy is to

- (a) Explain concept of equality using alternate method.
- (b) give lot of practice questions on numbers.
- (c) give lot of practice questions of word problems in another language.
- (d) explain him/her word problem in simple language.

Q15. Contemporary understanding of Mathematics Pedagogy encourages teachers to do all of the following, except:

- (a) Develop the skill of systematic reasoning in students.
- (b) Encourage the ability to approximate solutions.
- (c) Introduce computation of problems before development of conceptual understanding.
- (d) Create opportunities for students to guess-and-verify the solutions to problems.

Q16. Which of the following statements is correct regarding children coming to school from rural areas in the context of Mathematics?

- (a) They have poor communication skill in mathematics.
- (b) They need not learn formal mathematics as it is of no use to them.
- (c) They may have rich oral mathematical traditions and knowledge.
- (d) They do not know any mathematics.

Q17. Read the following statements:

- A.** Axioms are propositions which are assumed.
- B.** Axioms are special theorems.
- C.** Axioms are definitions.
- D.** Axioms, when proved becomes theorems.

Which of the following statements (s) is correct?

- (a) Only A
- (b) A and C
- (c) A and D
- (d) Only B

Q18. Which of the following statements does not reflect contemporary view of students errors in mathematics?

- (a) They can guide the teacher in planning her classes.
- (b) They should be overlooked.
- (c) They are a part of learning.
- (d) They are a rich source of information.

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Q19. Which of the following statement (s) regarding Mathematics is true?

- A. Mathematics is a tool.
- B. Mathematics is a form of art.
- C. Mathematics is a language.

- (a) A, B & C
- (b) A & B
- (c) B & C
- (d) Only A

Q20. To prove that $\sqrt{2}$ is an irrational number, a teacher begins by assuming that it is a rational number and then proceeds to show how this assumption is not feasible. This is an example of proof by

- (a) Verification
- (b) Induction
- (c) Deduction
- (d) Contradiction

Q21. Let x be the median of the data 13,8,15,14,17,9,14,16,13,17,14,15,16,15,14.

If 8 is replaced by 18, then the median of the data is y. What is the sum of the values of x and y?

- (a) 30
- (b) 27
- (c) 28
- (d) 29

Q22. The fractions $\frac{44}{49}, \frac{33}{38}, \frac{22}{25}$, and $\frac{24}{29}$ are written in descending order as

- (a) $\frac{44}{49}, \frac{33}{38}, \frac{24}{29}, \frac{22}{25}$
- (b) $\frac{24}{29}, \frac{33}{38}, \frac{22}{25}, \frac{44}{49}$
- (c) $\frac{22}{25}, \frac{24}{29}, \frac{33}{38}, \frac{44}{49}$
- (d) $\frac{44}{49}, \frac{22}{25}, \frac{33}{38}, \frac{24}{29}$

Q23. Which one of the following statements is not true for integers?

- (a) Subtraction is not commutative.
- (b) Multiplication is associative.
- (c) Division is commutative.
- (d) 1 is the multiplicative identity.

Q24. If $x = 2^3 \times 3^2 \times 5^3 \times 7^3$, $y = 2^2 \times 3^3 \times 5^4 \times 7^3$, and $z = 2^4 \times 3^4 \times 5^2 \times 7^5$. Then H.C.F. of x, y and z is

- (a) 30×7^5
- (b) $(30)^2 \times 7^3$
- (c) $(15)^3 \times 7^4$
- (d) $(30)^3 \times 7^3$

Q25. If $52272 = p^2 \times q^3 \times r^4$, Where p, q and r are prime numbers, then the value of $(2p+q-r)$ is

- (a) 29
- (b) 21
- (c) 22
- (d) 23

Q26. If the 7-digit number $134x58y$ is divisible by 72, then the value of $(2x + y)$ is

- (a) 9
- (b) 6
- (c) 7
- (d) 8

Q27. Which of the following is not a Pythagorean triplet?

- (a) 13,84,85
- (b) 7,24, 25
- (c) 8, 15, 17
- (d) 11, 60, 63

Q28. The measure of an angle for which the measure of the supplement is four times the measure of the complement is

- (a) 75°
- (b) 30°
- (c) 45°
- (d) 60°

Q29. If the angles, in degrees, of a triangle are x , $3x + 20$ and $6x$, the triangle must be

- (a) Isosceles
- (b) Obtuse
- (c) Acute
- (d) Right

Q30. In triangles ABC and DEF, $\angle C = \angle F$, $AC = DF$, and $BC = EF$. If $AB = 2x - 1$ and $DE = 5x - 4$, then the value of x is

- (a) 4
- (b) 1
- (c) 2
- (d) 3

Q31. In $\triangle DEF$ and $\triangle PQR$, if $PQ = DE$, $EF = PR$ and $FD = QR$, then

- (a) $\triangle DEF \cong \triangle RPQ$
- (b) $\triangle DEF \cong \triangle QPR$
- (c) $\triangle DEF \cong \triangle QRP$
- (d) $\triangle DEF \cong \triangle PQR$



Q32. In a quadrilateral ABCD, $\angle D = 60^\circ$ and $\angle C = 100^\circ$. The bisectors of $\angle A$ and $\angle B$ meet at the point P. The measure of $\angle APB$ is

- (a) 80°
- (b) 70°
- (c) 100°
- (d) 60°

Q33. The sum of all interior angles of a regular convex polygon is 1080° . The measure of each of its interior angles is

- (a) 108°
- (b) 135°
- (c) 72°
- (d) 120°

Q34. The mean of range, mode and median of the data 4, 3, 2, 2, 7, 2, 2, 0, 3, 4, 4, is

- (a) 4
- (b) 3
- (c) 5
- (d) 2

Q35. LCM of 22, 54, 135 and 198 is

- (a) $2^2 \times 3^3 \times 5 \times 11$
- (b) $2^3 \times 3^2 \times 5 \times 11$
- (c) $2 \times 3^3 \times 5 \times 11$
- (d) $2^2 \times 3^2 \times 5 \times 11$

Q36. Which one of the following statements is correct?

- (a) Sum of two prime numbers is always a prime number
- (b) '1' is the smallest prime number
- (c) A composite number can be odd
- (d) There is no even prime number

Q37. The product of integers between -7 and -3 is

- (a) 120
- (b) -360
- (c) -120
- (d) 840

Q38. The value of $1 + \frac{11}{10} + \frac{11}{100} + \frac{111}{1000} + \frac{111}{10000}$ is

- (a) 3.3221
- (b) 2.432
- (c) 2.3321
- (d) 2.245

Q39. The value of a machine which was purchased two years ago, depreciates at 12% per annum. If its present value is Rs 9,680, for how much was it purchased ?

- (a) Rs 12,142.60
- (b) Rs 11,350.50
- (c) Rs 12,500
- (d) Rs 10,200

Q40. The scale of a map is $1 : 3 \times 10^6$. Two cities are 9 cm apart on the map. The actual distance (in km) between the cities is

- (a) 180
- (b) 270
- (c) 360
- (d) 135

Q41. In a meeting, $\frac{4}{25}$ of the members were female. What percent of the members was this?

- (a) 40%
- (b) 24%
- (c) 16%
- (d) 4%

Q42. A shop reduced its prices by 10%. What is the new price of an item which was previously sold for Rs. 500?

- (a) Rs. 510
- (b) Rs. 550
- (c) Rs. 450
- (d) Rs. 400

Q43. Given below is a data set of temperatures (in °C):

-6, -8, -2, 3, 2, 0, 5, 4, 8

What is the range of the data?

- (a) 0 °C
- (b) 16 °C
- (c) 18 °C
- (d) 10 °C

Q44. A coin is tossed 10 times and the outcomes are observed as:


H, T, H, T, T, H, H, T, H, H

(H is Head; T is Tail)

What is the probability of getting Head?

- (a) $\frac{3}{5}$
- (b) $\frac{4}{5}$
- (c) $\frac{2}{5}$
- (d) $\frac{1}{5}$

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Q45. The numerical expression $\frac{3}{7} + \frac{(-7)}{8} = \frac{25}{56}$ shows that-

- (a) rational numbers are closed under addition
- (b) rational numbers are closed under subtraction
- (c) rational numbers are closed under multiplication
- (d) rational numbers are closed under division

Q46. Which one of the following 3D shapes does not have a vertex?

- (a) 4 Pyramid
- (b) Prism
- (c) Cone
- (d) Sphere

Q47. If $\left(\frac{5}{7}\right)^4 \times \left(\frac{5}{7}\right)^{-3} = \left(\frac{5}{7}\right)^{5x-2}$, then x is-

- (a) $\frac{1}{5}$
- (b) $\frac{2}{5}$
- (c) $\frac{3}{5}$
- (d) $\frac{4}{5}$

Q48. Let, a, b, c be three rational numbers, where $a = \frac{3}{5}, b = \frac{2}{3}, c = \frac{-5}{6}$. Which one of the following is true?

- (a) $a \times (b+c) = b \times (a+c)$
- (b) $a \div (b+c) = b \div (a+c)$
- (c) $a + (b+c) = c + (a+b)$
- (d) $a - (b-c) = c - (a-b)$

Q49. A geometric representation, showing the relationship between a whole and its part, is-

- (a) histogram
- (b) pie chart
- (c) bar graph
- (d) pictograph

Q50. If q is the square of a natural number p , then p is-

- (a) the square of q
- (b) the square root of q
- (c) equal to q
- (d) greater than q

Solutions

S1. Ans.(c)

S2. Ans.(b)

S3. Ans.(c)

S4. Ans.(a)

S5. Ans.(b)

S6. Ans.(c)

Sol.

$$\frac{2}{3} + \frac{4}{5} \text{ (Take LCM of Denominator 3 \& 5).}$$

$$\Rightarrow \frac{10+12}{15} \text{ (LCM is 15)}$$

$$= \frac{22}{15}$$

$$= 1 \frac{7}{15}$$

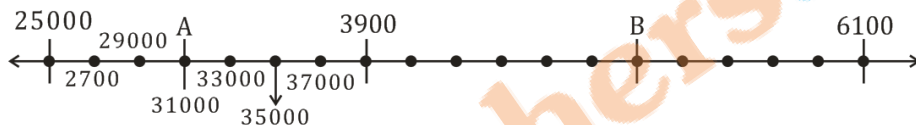
S7. Ans.(b)

S8. Ans.(b)

$$\text{Sol.} \Rightarrow 11,000 + 1100 + 11 = 12111$$

S9. Ans.(d)

Sol.



∴ Difference is 2000

$$A = 31000$$

$$B = 53000$$

$$\Rightarrow \text{Difference between A \& B is} = 53000 - 31000 = 22000 \text{ units}$$

S10. Ans.(a)

$$\text{Sol. Total sugar} = 3\frac{1}{4} = \frac{13}{4} \text{ kg}$$

$$\text{Quantity of 1 packet of sugar} = \frac{1}{16} \text{ kg}$$

No. of packets contain is total Sugar

$$= \frac{13}{4} \div \frac{1}{16}$$

$$= \frac{13}{4} \times \frac{16}{1} = 52 \text{ packet}$$

S11. Ans.(c)

S12. Ans.(b)

S13. Ans.(d)

S14. Ans.(a)

S15. Ans.(c)

S16. Ans.(c)

S17. Ans.(a)

S18. Ans.(b)

S19. Ans.(a)

S20. Ans.(d)

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S21. Ans.(d)

Sol. Data = 13, 8, 15, 14, 17, 9, 14, 16, 13, 17, 14, 15, 16, 15, 14

Median Data = 8, 9, 13, 13, 14, 14, 14, 14, 15, 15, 15, 16, 16, 17, 17, (by arranging the data ascending order)

Median = 14 (Mid term of total data's term is median, here total term are 15 so, median is 8th So, $x=14$ term)

If, we change 8 by 18 according to question my term will change by:-

Median data = 9, 13, 13, 14, 14, 14, 14, 15, 15, 15, 16, 16, 17, 17, 18

Median = 15 (It is 'Y' term)

The sum of value x & y ($x = 14, y = 15$)

$$= x + y = 14 + 15 = 29$$

S22. Ans.(d)

Sol.

$$\frac{44}{49}, \frac{33}{38}, \frac{22}{25} \text{ and } \frac{24}{29}$$

$$\begin{array}{r} \textcircled{1672} \quad \textcircled{1617} \\ \frac{44}{49} \quad \frac{33}{38} \quad \frac{22}{25} \quad \frac{24}{29} \end{array}$$

Large no. is 1672 in between these 2 terms

$$\begin{array}{r} \textcircled{1100} \quad \textcircled{1078} \\ \frac{44}{49} \quad \frac{22}{25} \end{array}$$

$$\begin{array}{r} \textcircled{1276} \quad \textcircled{1176} \\ \frac{44}{49} \quad \frac{24}{29} \end{array}$$

(ii)

$$\begin{array}{r} \textcircled{825} \quad \textcircled{836} \\ \frac{33}{38} \quad \frac{22}{25} \end{array}$$

$\frac{22}{25}$ is larger than $\frac{33}{38}$

$$\begin{array}{r} \textcircled{638} \quad \textcircled{600} \\ \frac{22}{25} \quad \frac{24}{29} \end{array}$$

(ii) Term is $\frac{22}{25}$

(iii)

$$\begin{array}{r} \textcircled{957} \quad \textcircled{912} \\ \frac{33}{38} \quad \frac{24}{29} \end{array}$$

$\frac{33}{38}$ is larger than $\frac{24}{29}$

Its is (iii) term

$$\frac{44}{49}, \frac{22}{25}, \frac{33}{38}, \frac{24}{29}$$

S23. Ans.(c)

S24. Ans.(b)

Sol. $x = 2^3 \times 3^2 \times 5^3 \times 7^3$

$y = 2^2 \times 3^3 \times 5^4 \times 7^3$

$z = 2^4 \times 3^4 \times 5^2 \times 7^5$

HCF of x, y, z is

$X = 2 \times 2 \times 2 \times 3 \times 3 \times 5 \times 5 \times 5 \times 7 \times 7 \times 7$

$Y = 2 \times 2 \times 3 \times 3 \times 3 \times 5 \times 5 \times 5 \times 5 \times 7 \times 7 \times 7$

$Z = 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 3 \times 5 \times 5 \times 7 \times 7 \times 7 \times 7 \times 7$

HCF = $\underline{2 \times 2 \times 3 \times 3 \times 5 \times 5 \times 7 \times 7 \times 7}$

$(30)^2 \times 7^3$ Option (b))

In HCF we chose common terms)

S25. Ans.(d)

Sol. $52272 = p^2 \times q^3 \times r^4$

2	52272
2	26136
2	13068
2	6534
3	3267
3	1089
3	363
11	121
11	11
	1

$52272 = 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 11 \times 11$

$= 2^4 \times 3^3 \times 11^2$

According to question, $2^4 = r^4$

$3^3 = q^3$

$11^2 = p^2$

2, 3, 11 all are prime no.

Hence, the value of $(2p + q - r)$ is put is value of p, q, r

$= [(2 \times 11) \pm 2] = 22 + 3 - 2 = 25 - 2 = 23$

S26. Ans.(d)

Sol. $134x + 58y$ is divisible by 72

If we put the value of $x = 2, y = 4$

Then this no. is divisible by 72

So, the value of $(2x + y)$ is put the value of x & y

$x = 2, y = 4$

$(2x + y) = ((2 \times 2) + 4) = 4 + 4 = 8$

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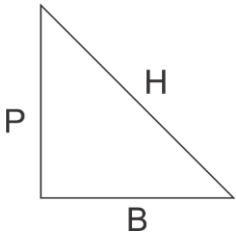
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S27. Ans.(d)

Sol. Pythagorean triplet follow the rule

$$a^2 + b^2 = c^2$$

$$\text{or } P^2 + B^2 = H^2$$



$$(D) (11)^2 + (60)^2 \neq (63)^2$$

$$121 + 3600 \neq 3869$$

$$3721 \neq 3869$$

So, option (d) is not a Pythagorean triplet

S28. Ans.(d)

Sol. Sum of complement angles are 90°

Sum of supplement angles are 180°

So, the angles are 30° , 60°

Its supplement angle is 4 times of it = 120°

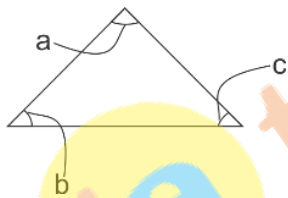
angle is 60°

option (d)

Whose complement angle is 30°

S29. Ans.(b)

Sol.



$a^\circ + b^\circ + c^\circ = 180^\circ$ (Sum of all three angles of a triangle always 180°)

Acc. to question, angles are $x, 3x + 20, 6x$

$$x + 3x + 20^\circ + 6x = 180^\circ$$

$$10x + 20^\circ = 180^\circ$$

$$10x = 160^\circ$$

$$x = 16^\circ$$

$$\text{So, } x = 16^\circ$$

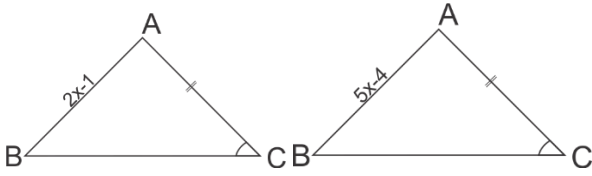
$$3x = 20 \Rightarrow 48 + 20 = 68^\circ$$

$$6x = 6 \times 16 = 96^\circ$$

Its is an obtuse angle because one of its angles is more than 90°

S30. Ans.(b)

Sol.



$$\angle C = \angle F \text{ (given)}$$

$$AC = DF \text{ (")}$$

$$AB = 2x - 1 \text{ (given)}$$

$$DE = 5x - 4$$

It is a congruent angle which follow the SSA rule

$$\text{So, } AB = DE$$

$$AC = DF \text{ (given)}$$

$$\angle C = \angle F$$

Acc, to this, value of x is

$$AB = DF$$

$$2x - 1 = 5x - 4$$

$$-1 + 4 = 5x - 2x$$

$$3 = 3x$$

$$x = \frac{3}{3} = 1$$

$$x = 1$$

S31. Ans.(b)

S32. Ans.(a)

S33. Ans.(b)

S34. Ans.(a)

S35. Ans.(c)

S36. Ans.(c)

S37. Ans.(c)

S38. Ans.(c)

S39. Ans.(c)

S40. Ans.(b)

S41. Ans.(c)

S42. Ans.(c)

S43. Ans.(b)

S44. Ans.(a)

S45. Ans.(a)

S46. Ans.(d)

S47. Ans.(c)

S48. Ans.(c)

S49. Ans.(b)

S50. Ans.(b)

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