



Unified International
Mathematics Olympiad

UNIFIED INTERNATIONAL MATHEMATICS OLYMPIAD (UPDATED)

CLASS - 4

Question Paper Code : 40119

KEY

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

EXPLANATIONS

MATHEMATICS

- | | |
|---|--|
| <p>01. (A) A 5-digit number whose reverse is 4 times itself is 21978, because $21978 \times 4 = 87912$, which is the reverse of 21978.</p> <p>02. (B) All numbers from 4450 to 4549 is 4500 when rounded off to the nearest hundred 4549 is the greatest among the numbers.</p> <p>03. (D) $\frac{657}{1000} = 0.657$</p> <p>04. (C) $\frac{5}{4} = 1\frac{1}{4} > 1$
Others are all less than 1.</p> | <p>05. (A) April has 30 days.
Pages = $35 \times 30 = 1,050$</p> <p>06. (B) Place 9 (the greatest digit) in the tens place and use the smallest other digits to keep the number minimal.</p> <p>07. (A) $29 - 5 - 15 - 3 = 6$</p> <p>08. (C) Anil is 9 kg heavier than Ramu and 16 kg heavier than Chandu.
Difference between Ramu and Chandu
$= 16 - 9 = 7$ kg</p> |
|---|--|

Total extra weight over the lightest person

$$= 16 + 7 + 0 = 23 \text{ kg}$$

Subtract 23 from total mass

$$146 - 23 = 123 \text{ kg}$$

Divide by 3 to get Chandu's mass

$$123 \div 3 = 41 \text{ kg}$$

$$\text{Anil} = 41 + 16 = 57 \text{ kg}$$

09. (B) Quantity of water in the pail

$$= 5 \text{ l} = 5000 \text{ ml}$$

$$\text{water used for plants} = 1 \text{ l } 385 \text{ ml}$$

$$= 1385 \text{ ml}$$

$$\text{water used to wash dishes} = 2 \text{ l } 48 \text{ ml}$$

$$= 2048 \text{ ml}$$

Quantity of water left

$$= 5000 - (1385 + 2048) \text{ ml}$$

$$= 1567 \text{ ml}$$

$$= 1 \text{ l } 567 \text{ ml}$$

10. (C) Factors of 48 : 1, 2, 3, 4, 6, 8, 12, 16, 24, 48

Only 7 does not divide 48

11. (B) Dividend = (Divisor $\times$ Quotient) + Remainder

$$= (7 \times 134) + 2 = 938 + 2 = 940$$

12. (D) Divisible by 11 : 187, 253, 495, 132 $\rightarrow$ 4 numbers

13. (A) $\frac{1}{3}$ of 12 = 4 pieces

$$\frac{1}{4} \text{ of } 12 = 3 \text{ pieces}$$

So, Amy ate 1 more piece.

14. (C) 4:45 $\rightarrow$ 6:10 = 1 hr 25 min

15. (D) Option (D) Rs. 85×2 + Rs. 20 = Rs. 190

$$\text{Option (A)} = \text{Rs. } 180$$

$$\text{Option (B)} = \text{Rs. } 90 + \text{Rs. } 80 = \text{Rs. } 170$$

$$\text{Option (C)} = \text{Rs. } 120 + \text{Rs. } 20 = \text{Rs. } 140$$

Max = Rs. 190, so (D) is best

16. (B) $3982 + 6853 = 10835$, $35000 - 10835 = 24165$

17. (D) Expanded form of 45010 is
 $40000 + 5000 + 0 + 10 + 0$

18. (A) Consider the given model



There are two full grids. So, the whole number part is 2.

In the last grid, there are 10 parts out of which 8 are colored. So, the decimal part is eight tenths.

So, the part shaded in the model is two and eight tenths.

Now, let's write two and eight tenths as a decimal.

Ones - Tenths

$$2 \quad - \quad 8$$

Two and eight tenths is written as the decimal 2.8.

So, the decimal number illustrated by the given model is 2.8.

19. (B) Multiply

$$\frac{1}{2} \times \frac{3}{4} = \frac{(1 \times 3)}{(2 \times 4)} = \frac{3}{8}$$

20. (A) Total toys = $135 \times 5 = 675$

$$\text{Good toys} = 675 - 84 = 591$$

21. (A) Sum of story + science

$$= 1,285 + 896 = 2,181$$

$$\text{Maths books} = 3,245 - 2,181 = 1,064$$

22. (D) $60 \times 60 \times 24 \times 7 =$ seconds in 7 days (1 week)

23. (B) Price per pen = Rs 2

Offer : Buy 4, get 1 free

Sarah bought 15 pens $\rightarrow$ How many she pays for ?

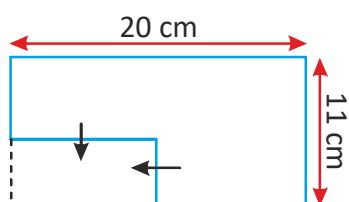
Step 1 : Count free pens

For every 4 bought, 1 is free $\rightarrow$ So, sets of 5 pens = 4 paid + 1 free

15 pens = 3 sets of 5 pens $\rightarrow$ each set pays for 4 pens $\rightarrow$ total paid pens = $3 \times 4 = 12$

Step 2 : Total cost = $12 \times 2 = \text{Rs } 24$

24. (B) Total time = 3 hours 10 minutes = 190 minutes
English = 50 min, Science = 1 hour 25 min = 85 min
Time for Maths = $190 - (50 + 85) = 190 - 135 = 55$ min
25. (D) Factors of 12 : 1, 2, 3, 4, 6, 12
Factors of 18 : 1, 2, 3, 6, 9, 18
Common factors : 1, 2, 3, 6
Option not a common factor = 4
26. (A) $1296 \div 36 = 36$
Each row has 36 plants.
27. (B) $3 \text{ l } 600 \text{ ml} = 3600 \text{ ml}$
 $3600 \div 300 = 12$ cups
28. (D) Multiples of 9 = 9, 18, 27, 36, 45, 54, 63, 72, 81, 90
Multiples of 9 which are odd numbers less than 72 = 9, 27, 45 & 63 are 4 odd numbers
29. (D) All shapes in the box have at least one right angle.
30. (B) Numbers not factors of 18 are 4, 12
31. (B) All are 10,000 except 10 hundreds (1,000)
32. (A) Hundred thousand place = 6 (in 620,000)
Next digit (ten thousand place) = 2 $\rightarrow$ less than 5 $\rightarrow$ round down
Rounded number = 7,600,000
33. (D) Length of a blue ribbon = 125 cm
Length of red ribbon = $125 \text{ cm} + 380 \text{ cm} = 505 \text{ cm}$
Length of the pink ribbon = $505 \text{ cm} + 98 \text{ cm} = 603 \text{ cm}$
34. (A) Total cost = $225 \times 2 = 450$;
Return = $500 - 450 = \text{Rs. } 50$
35. (C) $20 \text{ cm} + 20 \text{ cm} + 11 \text{ cm} + 11 \text{ cm} = 62 \text{ cm}$.



REASONING

36. (B)
37. (A) ACE $\rightarrow$ BDF (+1 each letter) $\rightarrow$ MOQ $\rightarrow$ NPR
38. (A) First letter represent shape
- = W ; = V ;
- = YW
39. (C) + =
40. (B) Given figures have vertical an horizontal symmetry (they can be bisected across, and up and down to make mirror images). In boxes A and C the shape is symmetrical in neither direction. In D it is symmetrical vertically. Only B works.
41. (A) The number arrows are decreasing by 1 and the dots in side the circle are increasing by, after each successive step.
42. (C) - =
43. (B) Except option (B) remaining has similar figures.
44. Delete
45. (A) Arrange the words in alphabetical order as in dictionary, we get sausage, savage, **save**, saviour, savour.

CRITICAL THINKING

46. (D) Children in Robert's row: 2 left + 1 (him) + 3 right = 6

Total rows : 2 front + 1 (his) + 1 behind = 4

Total children : $6 \times 4 = 24$

47. (C) Books may be white

Explanation (student-friendly):

- Since all books are paper, and
- only some papers are white,
- we cannot be sure that books are white, but it is possible.

So the safest and logically correct conclusion is "Books may be white."

Why the others are incorrect:

- A $\times$ Too strong — not all papers are white.
- B $\times$ Not guaranteed — books might or might not be among the white papers.
- D $\times$ No information says books are not white.

48. (B) Each friend's birthday satisfies Day + Month = 35.

List possible pairs : Month 4 $\rightarrow$ 31, 5 $\rightarrow$ 30, 6 $\rightarrow$ 29, ... , 12 $\rightarrow$ 23.

April has only 30 days, so Month 4 $\rightarrow$ Day 31 is invalid.

Remaining 8 valid birthdays $\rightarrow$ maximum friends = 8

49. (D) Total 32 triangles are there in the given figure.

50. (C) 1 ; so that the total of each vertical line of numbers increases by one every time.

===== The End =====