



Unified International
Mathematics Olympiad

UNIFIED INTERNATIONAL MATHEMATICS OLYMPIAD (UPDATED)

CLASS - 4

Question Paper Code : UM9274

KEY

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

EXPLANATIONS

MATHEMATICS

01. (B) By removing block K there will be no change in perimeter.

02. (B) To convert $1\frac{4}{5}$ to an improper fraction:

Number of fifths from the whole number part (1) = $1 \times 5 = 5$ fifths

Number of fifths from the fractional

part $\frac{4}{5} = 4$ fifths

Total fifths = $5 + 4 = 9$

03. (D)

$$\begin{array}{r} 3 \overline{) 2145} \\ 5 \overline{) 715} \\ 11 \overline{) 143} \\ \hline 13 \end{array}$$

Therefore, the correct answer is 9.

$$2145 = 3 \times 5 \times 11 \times 13$$

(3, 5); (11, 13) are twin primes,

i.e., P and R are the required twin primes.

04. (B) 1 complete turn have 4 right angle

\therefore $2\frac{1}{2}$ complete turn = $4 + 4 + 2 = 10$

05. (A) Product of $999\ 999\ 999 \times 888\ 888\ 888$
 Multiply only the last 3 - digits of each
 $999 \times 888 = 887112$
 The digit in the hundreds place is 1.
06. (D) The time at which the movie ended
 = 8: 23 p.m.
 Duration of the movie = 2 h 16 min
 \therefore The time at which the movie began
 = 8: 23 p.m. - 2 h 16 min = 6: 07 p.m.
07. (A) The product of two even numbers is an even number. An even number can be divided into two equal parts with no remainder.
08. (C) Quantity of water in Tank B and Tank C = $90\ l$
 Quantity of water in Tank A and Tank C = $87\ l$
 Quantity of water in Tank A = $43\ l$
 \Rightarrow Quantity of water in Tank C = $(87 - 43)\ l = 44\ l$
 and quantity of water in Tank B
 = $90\ l - 44\ l = 46\ l$
 \therefore Total quantity of water in the three tanks
 = $(43 + 46 + 44)\ l$
 = $133\ l$
 $\Rightarrow \frac{1}{7}$ of the total quantity of water
 = $\frac{1}{7} \times 133\ l = 19\ l$
09. (C) $(3456 \times 2 = 6912)$
10. (A) Compare the digits at the same place value, which is the units digit in this case. The units digit is 8 in 345,678 and 9 in 345,679.
11. (B) $A + B + 45896 = 96023 + B$
 $A = 96023 - 45896$
 = 50127
12. (B) Option (A) : $C - X = 100 - 10$
 = $90 = XC$ (Correct)
 Option (B) : $XI - IX = (10 + 1) - (10 - 1)$
 = $11 - 9 = 2$ XX (Wrong)
 Option (C) : $DC - C = 500 + 100 - 100$
 = $500 = D$ (Correct)
 Option (D) : $LXI - LIX = [50 + 10 + 1] - [50 + (10 - 1)] = 61 - 59 = 2 = II$ (Correct)
13. (C) $777 \div 21 = 37$
14. (B) Equilateral triangle is a polygon.
15. (C) $4 \times 8 \times 12 \times 16 \times 20 \times 24$
16. (B) The number of ways we can combine the weights to get 2 kg
 $1\ kg + 500\ g + 500\ g = 2\ kg$
 $1\ kg + 500\ g + 250\ g + 250\ g = 2\ kg$
 $1\ kg + 500\ g + 250\ g + 100\ g + 100\ g + 50\ g = 2\ kg$
 In 3 different ways we can combine the weights
17. (D) 103 is not divisible by 3 but remaining options all are divisible by 3.
18. (D)
$$\begin{array}{r} 4\ 4\ \boxed{1}\ 3 \\ -\ 3\ 3\ 4\ 6 \\ \hline 1\ 0\ 6\ 7 \end{array}$$

 Hence, missing number is (D)
19. (D) $41 - 12 - 12 = 18\ cm$
 $18 \div 2 = 9\ cm$
 The breadth is 9 cm
 $12 \times 9 = 108\ cm^2$
 The area is $108\ cm^2$.
20. (C) $4020\ ml + 4530\ ml$
 = $8550\ ml = 8\ l\ 550\ ml$

21. (A) $48 = 3 \times 16$ is a multiple of 16
 $64 = 4 \times 16$ is a multiple of 16
 $80 = 5 \times 16$ is a multiple of 16
 $44 = 2 \times 2 \times 11$ is not a multiple of 16
 $42 = 6 \times 7$ is not a multiple of 16
 $66 = 3 \times 2 \times 11$ is not a multiple of 16
 $86 = 2 \times 43$ is not a multiple of 16
 $46 = 2 \times 23$ is not a multiple of 16
 $68 = 2 \times 2 \times 17$ is a multiple of 16
 $88 = 2 \times 2 \times 2 \times 11$ is not a multiple of 16.

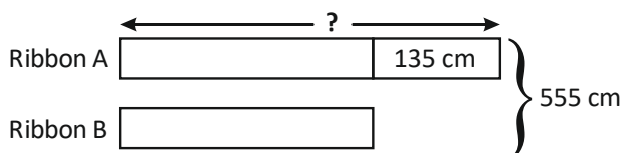
22. (Delete)

23. (B) $2 \times 36 \times 3 = 12 \times 1 \times 18$
 $= 9 \times \underline{6} \times 4$.

So, the missing number is 6.

24. (B) Million is the seventh place in the international system of numeration.

25. (C)



$$2 \text{ units} \rightarrow 555 \text{ cm} - 135 \text{ cm}$$

$$= 420 \text{ cm}$$

$$1 \text{ unit} \rightarrow 420 \text{ cm} \div 2$$

$$= 210 \text{ cm}$$

$$210 \text{ cm} + 135 \text{ cm} = 345 \text{ cm}$$

26. (A) XLIX = 49, LXXI = 71, XCI = 91, XLII = 42, XCV = 95

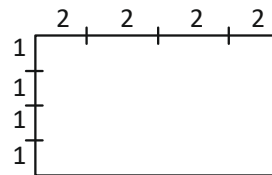
27. (A) 47, 59, 29, 31 are prime numbers and have only two factors.

28. (A) On Monday.

29. (B) length = $2 + 2 + 2 + 2 = 8 \text{ cm}$

$$\text{Breadth} = 4 \text{ cm}$$

$$\text{Perimeter} = 2(l + b) = 2 \times 12 \text{ cm} = 24 \text{ cm}$$



30. (B) $5 \times 25 \text{ min} = 125 \text{ min}$

$$= 120 \text{ min} + 5 \text{ min}$$

$$= 2 \text{ h } 5 \text{ min}$$

She takes 2 h 5 min to sew 5 dresses.

$$8.30 \text{ a.m.} \rightarrow 8 \text{ h } 30 \text{ min}$$

$$8 \text{ h } 30 \text{ min} + 2 \text{ h } 5 \text{ min} = 10 \text{ h } 35 \text{ min}$$

$$\rightarrow 10.35 \text{ a.m.}$$

She will have sewn 5 dresses at 10.35 a.m.

31. (B) The line segments formed are AB, BD, CD, AC, AD and CB, which are 6 in number.

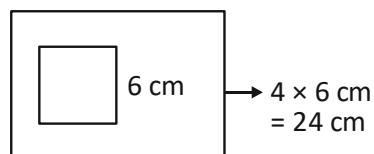
32. (C) Sally is busy for $8 + 4 = 12$ hours. The remaining time is $24 - 12 = 12$ hours.

$$\text{Fraction} = \frac{\text{Remaining Time}}{\text{Total Time}} = \frac{12}{24} = \frac{1}{2}$$

So, the correct answer is (C) $\frac{1}{2}$.

33. (A) Inner square (P) = 24 cm

$$l = \frac{24 \text{ cm}}{4} = 6 \text{ cm}$$

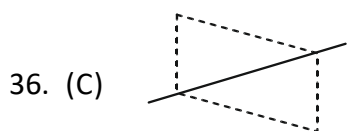


34. (C) 3:30 cannot be taken as thirteen minutes past six, as 30 minutes passed after 3

35. (B) Correct answer is 5100 m

$$\text{Total distance} = 2 \text{ km} + 3000 \text{ m} + 10,000 \text{ cm} \\ = 2000 \text{ m} + 3000 \text{ m} + 100 \text{ m} = 5100 \text{ m}$$

REASONING



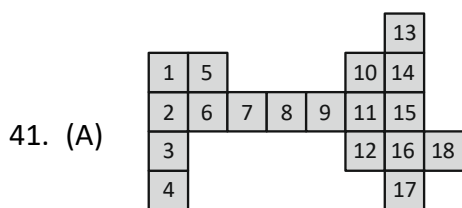
37. (D) ANT , BAT , CAT, DOT, EAT
A14T, B1T, C1T, D15T, E1T

38. (C) The last two digits interchange the position in an order also first and last two digits as a pair again interchange the position.

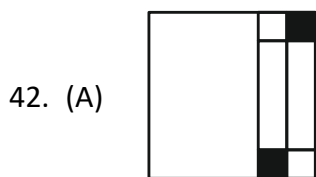
39. (B)

H	U	N	D	R	E	D	
-1	+1	-1	+1	-1	+1	-1	
G	V	M	E	Q	F	C	
T	H	O	U	S	A	N	D
-1	+1	-1	+1	-1	+1	-1	+1
S	I	N	V	R	B	M	E

40. (A) 5
(Words, Tokyo, Writer, Hippo, Artist)



Hence, the number of shapes is 18.

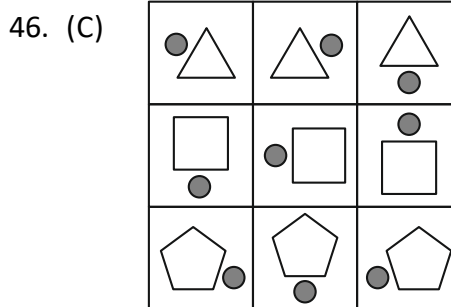


43. (B) The sequence is number of lines.
1, 2, 3, 4, 5
i.e., R, P, T, Q, S



45. (C) In option (C) only there are similar in outer image and inner image.

CRITICAL THINKING



47. (B)

1	2	3	4	5	6
20	21	22	23	24	7
19	32	33	34	25	8
18	31	36	35	26	9
17	30	29	28	27	10
16	15	14	13	12	11

48. (D) All pairs can pass through the cutouts.

49. (C) The correct answer is: C. The middle point is always less bumpy as, like a see-saw, the middle moves the least.

50. (D) Both the statements I and II are effects of independent causes.