



UNIFIED COUNCIL

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Unified International
Mathematics Olympiad

UNIFIED INTERNATIONAL MATHEMATICS OLYMPIAD (UPDATED)

CLASS - 5

Question Paper Code : UM9246

KEY

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

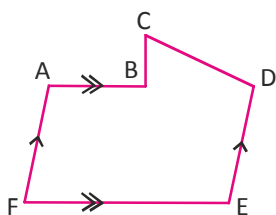
EXPLANATIONS

MATHEMATICS

1: (C) Multiples of 4 : 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48, 52, 56, 60, 64, 68

Multiples of 6: 6, 12, 18, 24, 36, 42, 48, 54, 60, 66

2: (B)



3: (D) $56 = 1 \times 56$
 $= 2 \times 28$
 $= 4 \times 14$
 $= 7 \times 8$

Multiples of 4: 4, 8, 12, 16, 20, 24, 28, 32, ...

4: (D) 3 units = 450 cookies
1 unit = $450 \div 3 = 150$ cookies
Number of cookies with nuts = 2 units
2 units = $2 \times 150 = 300$ cookies
300 cookies had nuts in them

5: (C) $3 \left[\frac{1}{4} \text{ of a complete turn is a right angle } (90^\circ) \right]$

6: (C) $4787 \times 8 = 38296$
 $38296 + 1 = 38297$

7: (A) Note that $\frac{1}{8}$ of $\frac{4}{5}$ kg is used and not $\frac{1}{8}$ kg

$$\frac{1}{8} \times \frac{4}{5} = \frac{1}{10} \text{ kg}$$

$$\frac{4}{5} - \frac{1}{10} = \frac{7}{10} \text{ or } 0.7 \text{ kg}$$

8: (A) 2 ones 7 hundredths = 2.07

$$\begin{array}{r} 0.69 \\ 3 \overline{) 2.07} \\ \underline{-0} \\ 2.0 \\ \underline{-1.8} \\ 0.27 \\ \underline{0.27} \\ 0.00 \end{array}$$

$$2.07 \div 3 = 0.69$$

9: (A) Percentage of salary left after transport
= $(100 - 10)\% = 90\%$

Percentage of salary spent on food

$$= \frac{30}{100} \times 90\% = 27\%$$

$$\text{Percentage left} = 90 - 27 = 63\%$$

$$63\% \rightarrow ₹ 1575$$

$$1\% \rightarrow \frac{1575}{63} = ₹ 25$$

$$\text{His salary} = ₹ 25 \times 100\% = ₹ 2500$$

10: (D) Three children ages in ratio = 7 : 4 : 1

Age of middle child is 2 years 4 months
i.e., $2 \times 12 + 4 = 28$ months = 7 : 4 × 7 : 1

$$= 7 \times 7 : 4 \times 7 : 1 \times 7 = 49 : 28 : 7$$

Age of oldest child is 49 months i.e., 4 years 1 month

11: (A) The join of two points on a circle is its diameter.

12: (C) Product: $409 \times 67 = 27403$
Largest possible odd number : 74203

13: (B) Distance = 1 km = 1000 m
Speed = 8 m/s

$$\text{Time} = \frac{\text{Distance}}{\text{Speed}} = \frac{1000}{8} = 125 \text{ sec}$$

14: (C) 903 tenths = $\frac{903}{10} = 90.3$

$$1535 \text{ hundredths} = \frac{1535}{100} = 15.35$$

$$90.3 - 15.35 = 74.95$$

74.95 rounded off to the nearest tenth is 75.0

(10 tenths is a whole)

(Note: It is important to give the answer as 75.0 as we are rounding off to the nearest tenth.)

(Note: $90.3 - 15.35$ is NOT EQUAL to 75.05)

15: (B) The number, is 8 less than a multiple of 35, which is also a multiple of 5. So, the number will be 2 more than a multiple of 5

$$\text{Take 35 as example : } 35 - 8 = 27 \\ = 25 + 2$$

Hence, the remainder will be 2

16: (B) Cash remaining with Prashanth = $[100\% - (65 + 20)\%]$ of total investment
= 15% of total investment

$$\therefore ₹ 1305 = \frac{15}{100} \times \text{total investment}$$

Hence, the total investment

$$= ₹ 1305 \times \frac{100}{15} = ₹ 8700$$

17: (C) Perimeter = $1 + 8 + 1 + 8 = 18$ units
18 units = 61.2 m

$$1 \text{ unit} = 61.2 \div 18 = 3.4 \text{ m}$$

$$\text{Difference: } 8 - 1 = 7 \text{ units}$$

$$= 3.4 \times 7 = 23.8 \text{ m} = 2380 \text{ cm}$$

18: (A) $90^\circ - 25^\circ = 65^\circ$

19: (B) The computer costs ₹ 19,990, and she makes ₹ 70 an hour. Divide to solve :
 $19,990 \div 70 = 285.5$ hours.

Since the rate is per hour, that 286th hour must be finished in order to be paid.

Therefore, 285.5 hours must be rounded up to 286

$$\begin{array}{r} 285.57 \\ 70 \overline{) 19.990} \\ \underline{140} \\ 599 \\ \underline{560} \\ 390 \\ \underline{350} \\ 400 \\ \underline{350} \\ 500 \\ \underline{490} \\ 10 \end{array}$$

20: (C) The top number of a fraction tells the partial amount (number of colored triangle). The bottom number of a fraction tells the whole amount (total number of triangles). There are 6 colored triangles out of a total of 8 equal triangles

21: (C) Mass of box A = 2400 g
 3 units = 2400 g
 1 unit = $2400 \div 3 = 800$ g
 The mass of box B is 800 g
 $2400 + 800 = 3200$ g = 3 kg 200 g
 Their total mass is 3 kg 200 g

22: (B) In every hour or 60 minutes, the minute hand moves through 360° (one full round).
 3 right angles = $3 \times 90^\circ = 270^\circ$

$$360^\circ = 60 \text{ min}$$

$$1^\circ = \frac{60}{360} \text{ min}$$

$$270^\circ = \frac{\cancel{60}^1}{\cancel{360}_6} \times 270 = 45 \text{ min}$$

It takes 45 minutes to move through 3 right angles

23: (A) Total no. of mangoes = $14 \times 3 \times 12 = 504$

$$\text{No. of good mangoes} = ₹ \frac{2400}{80} \times 8 = ₹ 30$$

$$\times 8 = 240$$

$$504 - 240 = 264$$

24: (D) 4 teacups + 2 teapots → ₹ 198

4 teacups + 5 teacups → ₹ 198

9 teacups → ₹ 198

1 teacup → ₹ $198 \div 9 = ₹ 22$

5 teacups → ₹ $22 \times 5 = ₹ 110$

2 teapots → ₹ 110

1 teapot → ₹ $110 \div 2 = ₹ 55$

25: (B) Total marks obtained if James answered all the questions correctly

$$= 30 \times 2 = 60$$

Number of marks deducted for each wrong answer

$$= 2 + 1 = 3$$

Number of marks deducted

$$= 60 - 45 = 15$$

$$= 15 \div 3 = 5$$

He answered 5 questions incorrectly

26: (B) $25 - 16 = 9$

$$9 \text{ cookies} = 4658 \text{ g} - 3263 \text{ g} = 1395 \text{ g}$$

$$1 \text{ cookie} = 1395 \text{ g} \div 9 = 155 \text{ g}$$

$$16 \text{ cookies} = 155 \text{ g} \times 16 = 2480 \text{ g}$$

$$3263 \text{ g} - 2480 \text{ g} = 783 \text{ g}$$

27: (A) Actual distance

$$= 8 \text{ m } 40 \text{ cm}$$

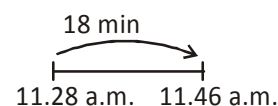
$$= 840 \text{ cm}$$

Distance of the map

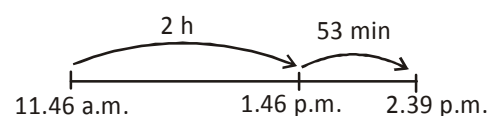
$$= 840 \div 200$$

$$= 4.2 \text{ cm}$$

28: (D) Correct time now is



Correct time 2 h 53 min from now is



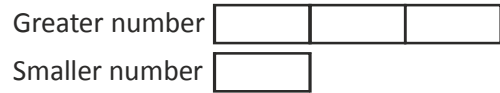
$$2.39 \text{ p.m.} \rightarrow 14 \text{ } 39$$

29: (A)



As the diagram on the right indicates, the W shape is made from 5 squares each of side-length 5 cm. Therefore its area is $5 \times (5 \times 5) = 125$ square metre.

30: (A)



4 units \rightarrow 192

1 unit \rightarrow $192 \div 4 = 48$

2 units \rightarrow $48 \times 2 = 96$

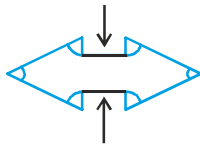
31: (A)

$$6 \times 120 \text{ cm}^2 = 720 \text{ cm}^2$$

$$720 \text{ cm}^2 - 376 \text{ cm}^2 = 344 \text{ cm}^2 \text{ (4 blouses)}$$

$$344 \text{ cm}^2 \div 4 = 86 \text{ sq. cm}$$

32: (A)



33: (B)

Fraction of her money Jaya spent

$$= \frac{3}{4} + \frac{1}{12}$$

$$= \frac{9}{12} + \frac{1}{12}$$

$$= \frac{10}{12} = \frac{5}{6}$$

34: (B)

Mass of 4 bags of peanuts

$$= 4 \times 478 = 1912 \text{ g}$$

Mass of 7 bags of almond

$$= 7 \times 525 = 3675 \text{ g}$$

Total mass of all the nuts

$$= 1912 + 3675$$

$$= 5587 \text{ g} \div 1000 = 5.587 \text{ kg}$$

35: (D)

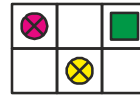
$$2145 = 3 \times 5 \times 11 \times 13$$

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

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

REASONING

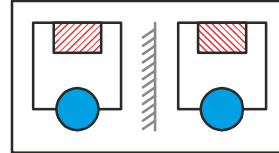
36: (D)



37: (C)



38: (D)



39: (C)

The 2nd term is obtained by taking letters at odd places from 1st term. Similarly 4th term is obtained from 3rd term. If we do the same with 5th term, we will get letters in option C.

40: (D)

Each time the letter move one position to the right or in clockwise direction.

41: (C)

All other words are formed by using the alphabets AEHRT except 'THREE' which does not have alphabet 'A'.

42: (A)

We should replace the given sign's with the respective mathematical operator. On doing so, we get the new expression $12 + 11 - 5 + 4 - 10 - 3, 27 - 18 = 9$

43: (C)

The letters at the third and sixth places are repeated thrice to code SYSTEM as SMSMSM. Similarly, the letters at the third, sixth and ninth places are repeated thrice to code FRAGRANCE as AAEEAAEEAE.

44: (A)

Arrange the words in alphabetical order as in dictionary, we get sausage, savage, save, saviour, savour.

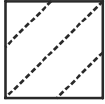
45: (D)

There is no places relation between X & Y. Hence we can't determine the position of Mr. X.

CRITICAL THINKING

46: (A) From the first two statements we can infer that Rahul > Ravi and Ravi > Raj. Therefore Rahul > Ravi > Raj. Therefore Raj is the shortest. Hence, the third statement is true.

47: (D)

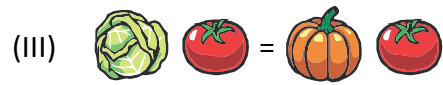


48: (C)



49 (A) If not everyone is strong, then there are some that are not strong, or similarly, someone is not strong.

50: (D) (III), (IV) and (V) are correct



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The End
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