



MATHS

BOOKS - HT Olympiad Previous Year Paper

IMO QUESTION PAPER 2019-20 SET A

Mathematical Reasoning

1. If $35.4067 = \frac{3}{P} + 5Q + 4R + \frac{6}{S} + 7T$, then the value of $2P + 4Q + 5R + 7S + 3T$ is

A. 74.003

B. 704.5003

C. 7004.703

D. 7004.7003

Answer: D



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2. Find the measure of the smaller angle formed by the hour hand and the minute hand of a clock at 8 O'clock

A. 160°

B. 240°

C. 90°

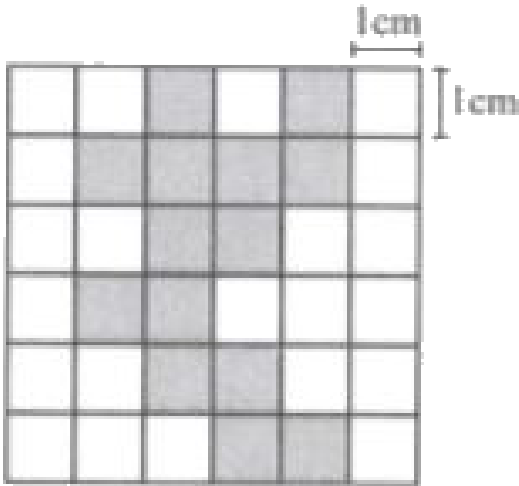
D. 120°

Answer: D



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3. Find the perimeter of the shaded region in the given figure .



⋮

- A. 30 cm
- B. 32 cm
- C. 26 cm
- D. 28 cm

Answer: D

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4. A hall is 37.5 m long and 11.2 m wide . Its floor is to be covered with rectangular tiles of size 15 cm by 7 cm . Find the total cost of tiling the hall at the rate Rs 1.25 per tile .

A. Rs 25700

B. Rs 50000

C. Rs 45000

D. Rs 48500

Answer: B



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5. Arjun is facing South -East .In which direction will he face , if he takes

A. $1\frac{1}{2}$ revolution anticlockwise ?

B. $\frac{3}{4}$ revolution clockwise

A. (a) North -East (b) North -East

- B. (a) South - West (b) North - West
- C. (a) South - East (b) North - East
- D. (a) North - West (b) North - East

Answer: D



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6. If $\frac{y}{x} = \frac{3}{4}$, then the value of $\left(\frac{1}{4} + \frac{2x - y}{x + 2y}\right)$ is

- A. 1
- B. 4
- C. $\frac{3}{4}$
- D. 2

Answer: C



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7.

If

$$P = \frac{3}{8} \div \frac{15}{16}, Q = 3 \div [(8 \div 15) \div 16], R = [3 \div (8 \div 15)] \div 16 \text{ and } S =$$

then which of the following are equal ?

A. P and Q

B. P and S

C. P and R

D. All are equal

Answer: B



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8. Find the sum of 43765 and 6954 by rounding off each number to the nearest hundred .

A. 50000

B. 51000

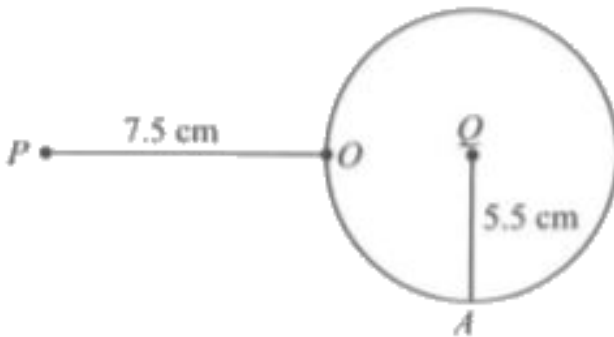
C. 53000

D. 50800

Answer: D

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9. O is a point on the circle and P is a point in the exterior of the circle. Length of $\overline{OP} = 7.5\text{ cm}$ and radius of the circle is 5.5 cm . What will be the length of \overline{QP} , if Q is the centre of the circle?



A. 5.5 cm

B. 13 cm

C. 7.5 cm

D. 13.5 cm

Answer: B



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10. Which of the following figures has at least one line of symmetry ?



A. Only P

B. Only P and Q

C. Only P,Q and S

D. P,Q,R and S

Answer: C

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11. Which of the following ratios is not equal to 3 : 8 in its simplest form ?

A. 207 : 552

B. 261 : 696

C. 141 : 392

D. 153 : 408

Answer: C

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12. Which of the following operations satisfies the associative law for whole numbers?

A. Substraction and division

B. Subtraction and multiplication

C. Division and multiplication

D. Addition and multiplication

Answer: D



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13. The given table shows the number of sweaters knitted by Mrs Kapoor in seven months .

Months	Number of sweaters
May	≡ III
June	≡ II
July	≡
August	III
September	≡
October	≡ II
November	≡≡

How many total sweaters did she knit in these seven months ?

A. 42

B. 46

C. 54

D. 47

Answer: B



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14. The given table shows the number of sweaters knitted by Mrs Kapoor in seven months .

Months	Number of sweaters
May	ⅢⅢⅢ
June	ⅢⅢⅡ
July	ⅢⅢ
August	ⅢⅢⅢ
September	ⅢⅢⅢ
October	ⅢⅢⅡ
November	ⅢⅢⅢⅢ

How many less sweaters did she knit in August than in November ?

A. 5

B. 7

C. 6

D. 4

Answer: C



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15. The least number which when divided by 12,16,24 and 48 leaves a remainder of 3,7,15 and 39 respectively , is _____

A. 16

B. 48

C. 57

D. 39

Answer: D

16. The given table shows the temperature of a city for seven days .

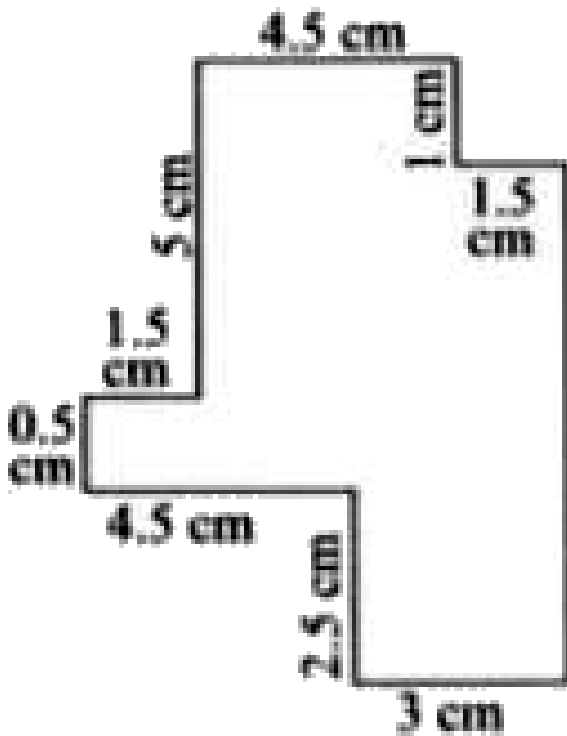
Days	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Temperature (in °C)	- 6	15	- 2	18	12	0	20

On which day does the temperature increase the most from the previous day ?

- A. Sunday
- B. Thursday
- C. Wednesday
- D. Tuesday

Answer: D

17. Find the area of the given figure (not drawn to scale)



A. 25.5cm^2

B. 32.25cm^2

C. 25cm^2

D. 39.75cm^2

Answer: D



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18. Select the incorrect option .

A. CLXV - 165

B. MCXLIX-1149

C. CMLXXIV -964

D. MCCLVIII-1258

Answer: C



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19. Simplify : $4\frac{1}{3} - 2\frac{4}{9} + 1\frac{3}{5} - \frac{2}{5}$

A. $3\frac{4}{45}$

B. $1\frac{4}{45}$

C. $3\frac{7}{45}$

D. $1\frac{2}{45}$

Answer: A



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20. 1054 is divided into three parts such that 2 times the first part , 3 times the second part and 5 times the third part are equal .Find each of the three parts .

A. 450, 360, 244

B. 350, 456, 248

C. 510, 340, 204

D. 325, 470, 259

Answer: C

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Everyday Mathematics

1. Four friends step off together from the same spot . Their steps measure 18 cm , 36 cm , 45 cm and 72 cm respectively .What is the minimum distance in complete steps ?

A. 280 cm

B. 340 cm

C. 360 cm

D. 420 cm

Answer: C

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2. For a concert Vishakha spent Rs 4,74, 560 on musical instruments ,Rs 8,12,320 on food ,Rs 3,28,254 on decoration and Rs 56,480 on advertisement .Find the total amount spent by her .

A. Rs 21,42,334

B. Rs 16,71,614

C. Rs 21,34,136

D. Rs 15,49,612

Answer: B



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3. Niharika walks thrice around a square field of side 22 m . Girish walks twice around a rectangular field of length 10 m and breadth 12 m . Who covers more distance and by how much?

A. Girish , 20 m

B. Niharika ,200 m

C. Girish ,176 m

D. Niharika ,176 m

Answer: D



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4. Jennifer bought 6 sarees and 3 shirts . A saree costs twice as a shirt . If each saree costs Rs 1050.50 , then how much total amount did she spend ?

A. Rs 7878.75

B. Rs 8245.25

C. Rs 7545.50

D. Rs 7540.25

Answer: A



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5. There are 42 flats in city A and 54 flats in city B. If the cost of each flat in city A and city B is Rs 2,84,500 and Rs 2,69,000 respectively, then what is the difference between the cost of all the flats in city A and city B ?

A. Rs 18,45,000

B. Rs 25,44,000

C. Rs 27,54,500

D. Rs 25,77,000

Answer: D



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6. 8 years ago, Vinay was 3p years old. How old (in years) will he be after 4 years ?

A. $3p + 4$

B. $3p + 12$

C. $3p - 4$

D. $3p - 12$

Answer: B



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7. An amount of Rs 5850 is divided into Vishal and Anita in the ratio 4 : 5

.Find the share of Anita .

A. Rs 2600

B. Rs 3450

C. Rs 4680

D. Rs 3250

Answer: D

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8. A container is completely filled with four packets of flour weighing $6\frac{3}{8}kg$, $5\frac{1}{2}kg$, $2\frac{3}{4}kg$ and $9\frac{1}{2}kg$. Find the total weight the container can hold .

A. $26\frac{7}{8}kg$

B. $24\frac{3}{8}kg$

C. $24\frac{1}{8}kg$

D. $24\frac{7}{8}kg$

Answer: C

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9. A rectangular courtyard 1.12 m long and 0.84 m wide is to be paved exactly with square tiles , all of same size . The largest size of the which

could be used for the purpose is $(n \times 4)$ cm . Find the value of n

A. 6

B. 8

C. 7

D. None of these

Answer: C



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10. Arjun weighs twice as Surbhi and Sejal weighs 5 kg less than Arjun . If the total weight of Arjun , Surbhi and Sejal is 63 kg , then find the total weight of Sejal and Arjun .

A. 54.2 kg

B. 47 kg

C. 49.4 kg

D. 62.4 kg

Answer: C



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Achievers Section

1. Fill in the blanks and select the correct option .

In 43.295, the digit _____ is at hundredths place .

A. (i) 5

B. (i) 9

C. (i) 3

D. (i) 2

Answer: B



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2. Compare : $11.45 - 3.25 + 12.5$ _____ $15.75 - 4.65 + 9.85$.

A. (i) (ii) (iii)
5 < 15.548

B. (i) (ii) (iii)
9 < 15.558

C. (i) (ii) (iii)
9 > 15.547

D. (i) (ii) (iii)
2 < 15.548

Answer: B



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3. 15.5575 rounded off to the nearest thousandths is _____.

A. (i) (ii) (iii)
5 < 15.548

B. (i) (ii) (iii)
9 < 15.558

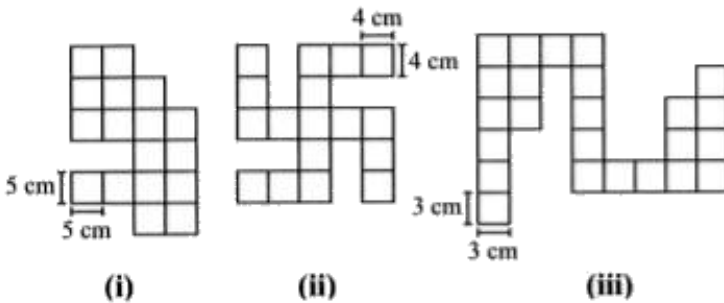
C. (i) (ii) (iii)
9 > 15.547

D. (i) (ii) (iii)
2 < 15.548

Answer: B

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4. Find the perimeter of the following figures (not drawn to scale) and select the correct option .



- A. Perimeter of [(i)+(ii)] = Perimeter of [(ii)+(iii)]
- B. Perimeter of [(i)+(ii)] = Perimeter of (iii)
- C. Perimeter of [(i)+(iii)] > perimeter of (ii)
- D. None of these

Answer: C

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5. Study the given statements carefully and select the correct option .

Statement -I : 7456824 is divisible by 9 .

Statement -II : A natural number is divisible by 9 , if the sum of the digits of the number is divisible by 3 .

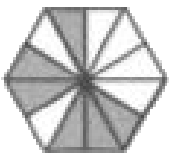
- A. Both Statement -I and Statement -II are true .
- B. Both Statement -I and Statement -II are false
- C. Statement -I is true but Statement -II is false
- D. Statement -I is false but Statement -II is true .

Answer: C

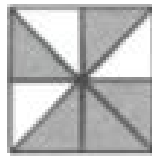


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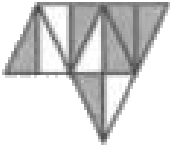
6. Arrange the following figures in ascending order of their shaded fraction .



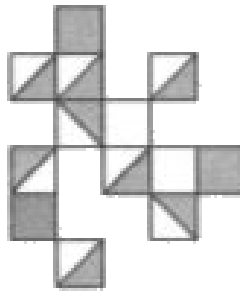
P



Q



R



S

A. S,P,R,Q

B. P,S,R,Q

C. P,S,Q,R

D. Q,R,S,P

Answer: B

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7. Which of the following options is incorrect ?

- A. Roman numeral for the largest 3 - digit number is CMXCIX
- B. The smallest 4-digit number formed by using the digits 5,6,0,9 (using each digit only once) is 5069 .
- C. Estimated product of 5034 and 295 is 1500000.
- D. Place value and face value are always equal at tens place .

Answer: D



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Logical Reasoning

1. If 1 is subtracted from the tens digit and 1 is added to the unit digit in each of the given numbers , then which of the following numbers will become the greatest ?

381,376,387,368,328

A. 381

B. 376

C. 387

D. 328

Answer: C



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