MATHS

BOOKS - HT Olympiad Previous Year Paper

IMO QUESTION PAPER 2018-19 SET A

Mathematical Reasoning

1. Find the difference between the smallest 5-digit number and the greatest 5-digit number formed by using the digits $6, 8, 2, 5$ and 9 (using each digit only once).

A. 27936

B. 72963

C. 56293

D. 39576

Answer: B

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2. If the product of two numbers is 1728 and their HCF is 12, then their LCM is___

A. 156

B. 144

C. 256

D. 172

Answer: B

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3. Which of the following options gives the result CCC?

A. MXIII - DCCXIV

B. LXIV + CCXXVI

C. CXXIX + CLXXI

D. XCVI + CCII

Answer: C

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4. Which of the following properties is shown in the given expression?

$$72(4 + 5) = 72 \times 4 + 72 \times 5$$

A. Commutative property

B. Closure property

C. Associative property

D. Distributive property

Answer: D

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5. If a number is formed by interchanging the digits at tens and thousands places of 7939, then which of the following is correct?

A. New number $>$ Original number

B. New number $<$ Original number

C. New number = Original number

D. None of these

Answer: B

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6. Find the minimum number of points at which three lines intersect.

A. 1

B. 3

C. 2

D. 0

Answer: A

7. Using a ruler and compasses, which of the following constructions can be made?

A. A circle, when the length of its radius is known.

B. The perpendicular bisector of a line segment of the given length.

C. Both A and B

D. None of these

Answer: C

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8. On a number line, numbers are marked at a distance of 1 cm apart from each other. One end of a line segment is at -8 and the other end is at 9. How long is the line segment (in cm)?

A. 1

B. -1

C. 16

D. 17

Answer: D

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9. 1162 is divided into three parts such that 4 times the first part, 5 times the second part and 7 times the third part are equal. Find the parts.

A. 490, 392, 280

B. 492, 392, 278

C. 493, 329, 340

D. 393, 290, 360

Answer: A

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10. Find the fraction, if its decimal value is 0.6 and denominator is 75

A. $\dfrac{35}{75}$

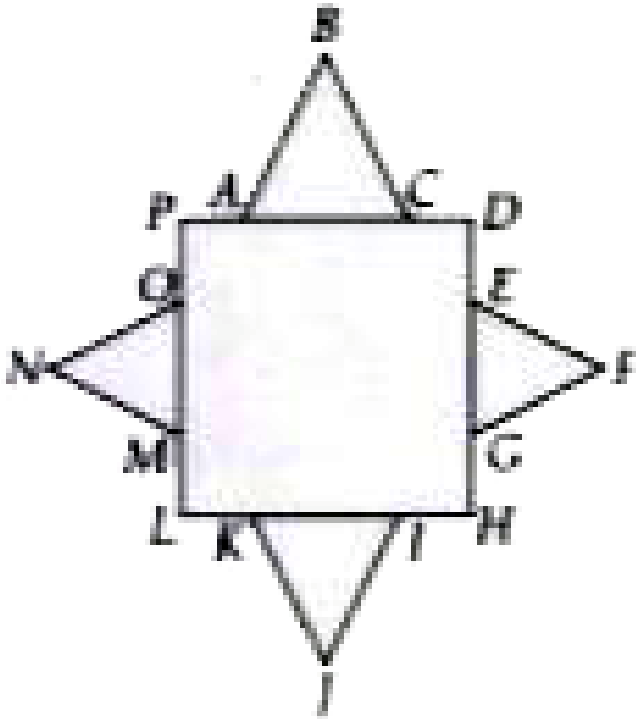B. $\dfrac{45}{75}$

C. $\dfrac{65}{75}$

D. $\dfrac{85}{75}$

Answer: B

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11. In the given figure (not drawn to scale), $\triangle ABC$, $\triangle EFG$, $\triangle KIJ$ and $\triangle NMO$ are 4 different equilateral triangles. Find the perimeter of the figure, if side of square PDHL is 8 cm, AC = 4cm, EG = 2

cm, KI = 3 cm and MO = 2 cm.

A. 34 cm

B. 64 cm

C. 43 cm

D. 52 cm

Answer: C

12. If $a = 8$ and $x = 4,$ then the value of $\dfrac{3ax + 6x - 9}{3a - 4x - 2}$ is

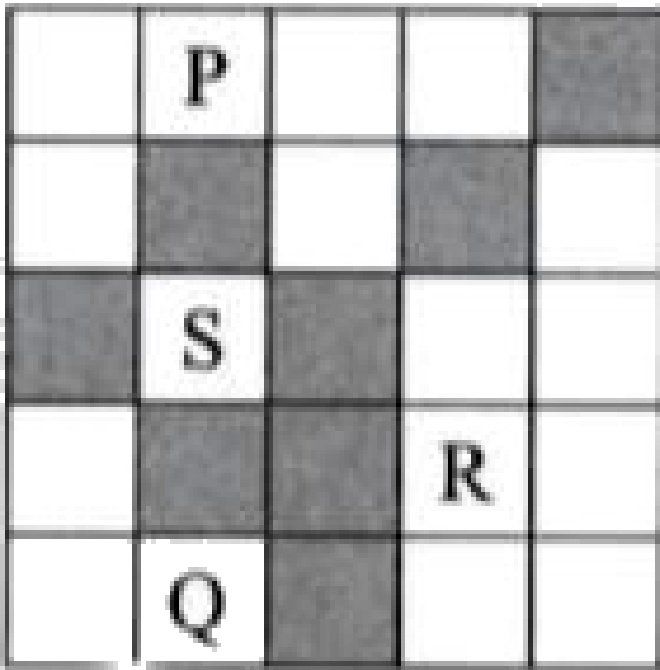   A. $18\dfrac{1}{3}$

    B. $19\dfrac{2}{7}$

    C. $19\dfrac{1}{3}$

    D. $18\dfrac{1}{2}$

Answer: D

13. Which of the following squares should be shaded to make the given figure symmetric?
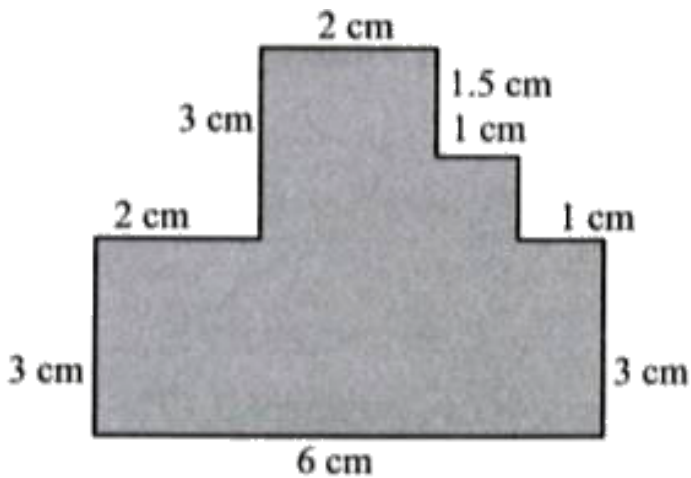

A. P and Q

B. P and S

C. Q and R

D. R and S

Answer: D

14. Find the area of the given figure.

A. 25 .5 sq . Cm

B. 23 . 5 sq. cm

C. 25 sq. cm

D. 24 sq .cm

Answer: A

15. Read the statements carefully and select the CORRECT option.

Statement-I: A circle is the path of a point moving at the same distance from a fixed point.

Statement-II : A sector of a circle is a region in the interior of the circle enclosed by an arc and a chord.

    A. Both Statement-I and Statement-II are true.

    B. Statement-I is true but Statement-II is false.

    C. Statement-I is false but Statement-II is true.

    D. Both Statement-I and Statement-II are false.

Answer: B

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16. Arrange the following in ascending order.

$$\frac{6}{12}, \frac{2}{9}, \frac{4}{7}, \frac{3}{18}$$

A. $\dfrac{4}{7}, \dfrac{2}{9}, \dfrac{6}{12}, \dfrac{3}{18}$

B. $\dfrac{3}{18}, \dfrac{6}{12}, \dfrac{2}{9}, \dfrac{4}{7}$

C. $\dfrac{3}{18}, \dfrac{2}{9}, \dfrac{6}{12}, \dfrac{4}{7}$

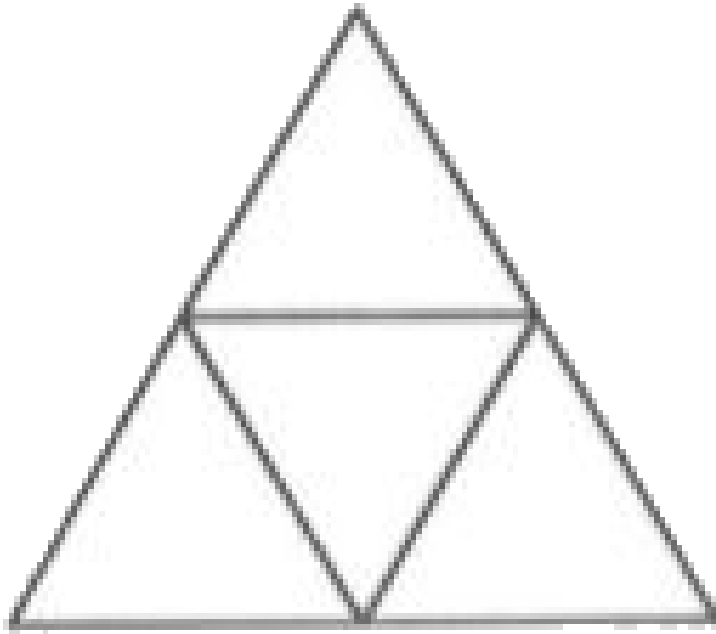D. $\dfrac{2}{9}, \dfrac{3}{18}, \dfrac{4}{7}, \dfrac{6}{12}$

Answer: C

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17. The net of a solid is given. Identify the shape and find the number of faces of the solid formed when

the net is folded.

A. Triangular pyramid, 4

B. Square pyramid, 5

C. Triangular prism, 5

D. Tetrahedron, 6

Answer: A

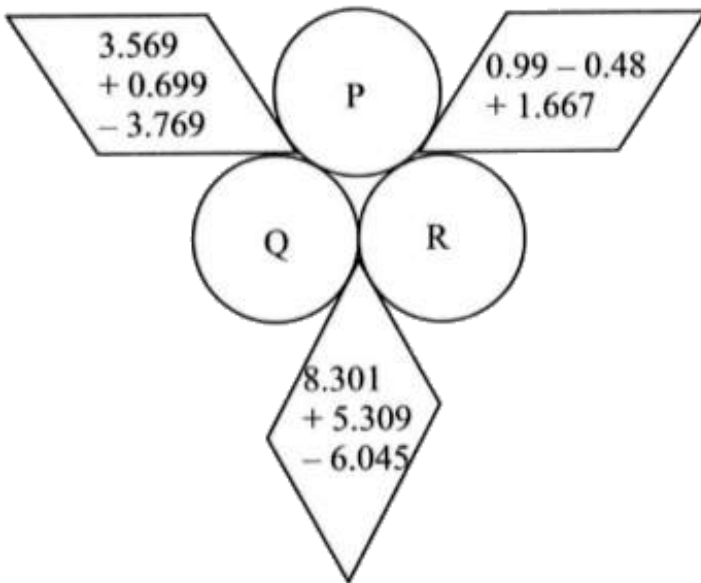**18.** Which of the following numbers is completely divisible by 9?

A. 596348

B. 965864

C. 695844

D. 746936

Answer: C

19. Find the values of circles P, Q and R respectivel such that the sum of the numbers in two quadrilaterals equals to the value of the circle in between them.

3.569
+ 0.699
− 3.769

P

0.99 − 0.48
+ 1.667

Q   R

8.301
+ 5.309
− 6.045

A. 2.676, 8.064, 9.742

B. 7.334, 6.442, 2.332

C. 9.742, 2.676, 8.064

D. 8.064, 9.742, 8.999

Answer: A

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20. Which of the following ratios are in proportion?

A. 150 g : 350 g and 35 kg : 210 kg

B. Rs. 60: Rs. 120 and Rs. 90 : Rs. 160

C. 24 cm : 15 m and 80 g : 5 kg

D. 3 L : 9 L and 18 mL : 27 L

Answer: C

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Everyday Mathematics

1. A retailer bought 12000 strawberries. He threw 144 strawberries that were rotten. He packed the remaining strawberries equally in 76 boxes. How many strawberries were there in each box?

A. 156

B. 149

C. 160

D. 250

Answer: A

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2. Ruhanika is organising a party for 480 people and needs disposable glasses and straws. There are 40 glasses in a pack and 160 straws in a pack. She needs exactly the same number of glasses and straws. What s the minimum number of each pack she must buy?

A. 14 packs of glasses and 12 packs of straws

B. 15 packs of glasses and 3 packs of straws

C. 14 packs of glasses and 11 packs of straws

D. 12 packs of glasses and 3 packs of straws

Answer: D

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3. Five square flower beds each of sides 1.2 m are dug

on a piece of land 4.8 m long and 4.2 m wide. What is

the area of the remaining part of the land ?

A. 12.69 sq. m

B. 12.96 sq.m

C. 11.96 sq. m

D. 144 sq.m

Answer: B

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4. At present, Kirti is 12 years old and her mother Kamlesh is 42 years old. Find the ratio of the Kamlesh's age two years ago to Kirti's age two years hence.

A. $7 : 20$

B. $20 : 7$

C. $10 : 3$

D. $3 : 10$

Answer: B

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5. The breadth of a rectangular bed sheet is 5 m more than half the length of the bed sheet. What is the perimeter of the bed sheet, if the length is x m?

A. $(3x + 12)m$

B. $2(x + 5)m$

C. $(3x + 10)m$

D. $(4x + 12)m$

Answer: C

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6. On one day, the temperature on a hill at 8 pm. Was $2°C$ but at mid-night, it fell down to $-3°C$. By how much did the temperature fall?

A. $5°C$

B. $6°C$

C. $7°C$

D. $8°C$

Answer: A

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7. Chinmay purchased 10 kg rice at the rate of Rs. 5

per kg, 15 kg 40 g sugar at the rate of Rs. 20 per kg

and 5 kg 60 g salt at the rate of Rs. 9 per kg. He gave

Rs. 1000 to the shopkeeper. How much money did he get back?

A. Rs. 234.94

B. Rs. 503.66

C. Rs. 496.34

D. Rs. 743.99

Answer: B

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8. Swati ate 1/2 of the candies she had and gave rest to Jeny. Jeny kept 8 of the candies and gave rest of

the 10 candies to Sakshi. How many candies did Swati eat?

A. 18

B. 24

C. 72

D. 36

Answer: A

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9. Three farmers have 165 kg, 190 kg and 210 kg of wheat respectively. Find the maximum capacity of a

bag such that the quantity of wheat can be packed in exact number of bags.

A. 15 kg

B. 50 kg

C. 45 kg

D. 5 kg

Answer: D

10. Vidhi writes the smallest 6-digit number and Ridhi writes the greatest 7-digit number on the

blackboard. Their Maths teacher finds the difference between the smallest 4-digit number and the sum of the two numbers written on the blackboard. What would be the answer?

A. 10099999

B. 10098999

C. 19999890

D. 10069998

Answer: B

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1. Fill in the blanks .

A right angle is _____of a revolution.

(ii) A figure whose all sides are equal and all angles are _____is called regular closed figure.

(iii) The product of two negative integers is a_____ integer.

(iv) _____of a number is a number that comes just after that number.

	P	Q	R	S
A.	One-fourth	different	positive	successor
B.	One-third	different	negative	predecessor
C.	One-fourth	equal	positive	successor
D.	Half	equal	negative	predecessor

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2. State 'T' for true and 'F' for false and select the correct option.

(i) Set-squares are useful to draw parallel lines.

(ii)

$$13.5 + 4\frac{3}{8} + 9\frac{1}{8} + 8 + 6\frac{4}{8} > 12.5 + 5\frac{1}{2} + 8 + 14.6$$

(iii) Zero is less than every negative number

(iv) 4 more than - 7 is -3.

A.
i	ii	iii	iv
T	T	F	T

B.
i	ii	iii	iv
T	F	F	T

C.
i	ii	iii	iv
T	T	F	F

D.
i	ii	iii	iv
F	T	F	T

Answer: B

3. The given bar graph shows the sale of different brands of shirts in a shop in one month .
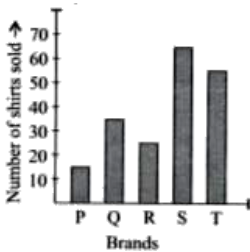
(i) How many total shirts are sold in the month?

(ii) Find the fraction of number of shirts sold of brand S to the number of shirts sold of brand P and
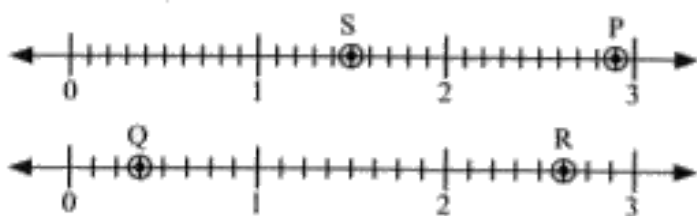
R together.

	(i)	(ii)
A.	195	$\dfrac{8}{9}$
B.	200	$\dfrac{13}{8}$
C.	165	$\dfrac{11}{7}$
D.	195	$\dfrac{13}{8}$

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4. Study the given number lines and find the value of $(S + R) \div (P - Q)$.

A. $1\dfrac{64}{101}$

B. $1\dfrac{512}{101}$

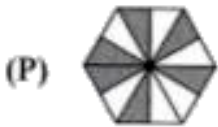C. $2\dfrac{512}{403}$

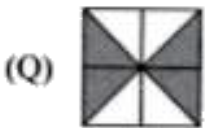D. $1\dfrac{61}{213}$

Answer: A

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5. Match the figures given in Column-I with their shaded ratio given in Column-II and select the correct option.

Column-I	Column-II
(P)	(i) 3 : 5
(Q)	(ii) 7 : 13
(R)	(iii) 7 : 12
(S)	(iv) 1 : 2

A.

$(P) \rightarrow (iii), (Q) \rightarrow (iv), (R) \rightarrow (i), (S) \rightarrow (ii)$

B.

$$(P) \to (iv), (Q) \to (iii), (R) \to (ii), (S) \to (i)$$

C.

$$(P) \to (iv), (Q) \to (iv), (R) \to (i), (S) \to (ii)$$

D.

$$(P) \to (iii), (Q) \to (ii), (R) \to (iv), (S) \to (i)$$

Answer: C

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