

Section A (For class 6th, 7th & 8th)

1. A bat ate 1050 dragon flies on four consecutive nights. Each night she ate 25 more than on the night before. How many did she eat on first night?

(a) 225 (b) 250
(c) 275 (d) 300

Sol: (a)

Let no. of dragonflies ate by bat an first day = x

an second day = x + 25

third day = x + 50

fourth day = x + 75

A.T.Q

$$x + x + 25 + x + 50 + x + 75 = 1050$$

$$\Rightarrow 4x + 150 = 1050$$

$$4x = 900$$

$$x = \frac{900}{4} = 225$$

2. HCF of 1134, 1344, 1638 is

(a) 21 (b) 42
(c) 63 (d) 7

Sol: (b)

$$1134 = 2 \times 3 \times 3 \times 3 \times 3 \times 7$$

$$1344 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 7$$

$$1638 = 2 \times 3 \times 3 \times 7 \times 13$$

$$\text{HCF} = 2 \times 3 \times 7 = 42$$

3. A cube has

(a) 8 vertices, 12 edges and 6 flat surfaces.

(b) 4 vertices, 6 edges, 6 flat surfaces.

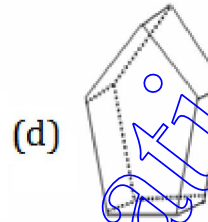
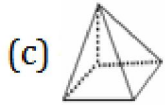
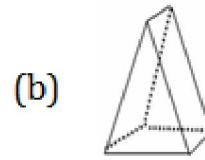
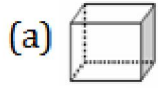
(c) 4 vertices, 12 edges and 4 flat surfaces.

(d) 8 vertices, 6 edges, 4 flat surfaces.

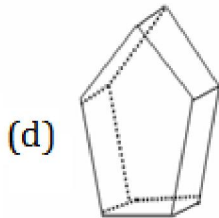
Sol: (a)

8 vertices, 12 edges and 6 flat surfaces

4. Which 3-dimensional figure has 7 faces, 15 edges and 10 vertices?



Sol:



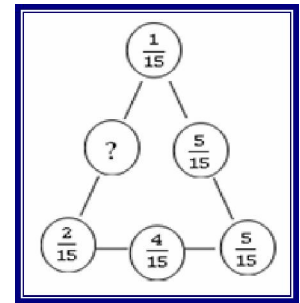
5. What should be placed in the empty space '?' so that the sum of fractions on each side of the triangle is same?

(a) $\frac{7}{15}$

(b) $\frac{9}{15}$

(c) $\frac{6}{15}$

(d) $\frac{8}{15}$



Sol: (d)

$$\frac{1}{15} + \frac{5}{15} + \frac{5}{15} = \frac{1}{15} + ? + \frac{2}{15}$$

$$\frac{11}{15} - \frac{3}{15} = ?$$

$$\frac{8}{15} = ?$$

6. $xy - [yz - zx - \{yx - (3y - xz) - (xy - zy)\}]$

(a) $xy - 3y + 2xz$

(b) $xy + 3y + 2xz$

(c) $-xy + 3y + 2xz$

(d) $xy - 3y - 2xz$

Sol: (a)

$$xy - [yz - zx - \{yx - 3y + xz - xy + zy\}]$$

$$xy - [yz - zx + 3y - xz - zy]$$

$$xy - 3y - 2xz$$

7. In the word **Mathematics**, the ratio of number of consonants to the number of vowels is

(a) 4:7

(b) 7:4

(c) 5:6

(d) 6:5

Sol: (b)

7:4

8. Which of the following correctly shows 185367249 according to International place value chart?

(a) 1, 853, 672, 49

(b) 18, 536, 724, 9

(c) 185, 367, 249

(d) None of these

Sol: (c)

185, 367, 249

9. Roman numeral for the greatest three digit number is

(a) IXIXIX

(b) CMXCIX

(c) CMIXIX

(d) CMIIIC

Sol: (b)

CMXCIX

10. Which list shows the numbers in order from least to greatest?

(a) 3, 800, 902

3, 808, 290

4, 808, 092

4, 880, 901

(b) 4, 880, 901

4, 808, 092

3, 808, 290

3, 800, 902

(c) 4, 808, 092

3, 808, 290

4, 880, 901

3, 800, 902

(d) 3, 880, 902

4, 808, 092

3, 808, 290

4, 880, 901

Sol: (a)

3, 800, 902 3, 808, 290 4, 808, 092 4, 880, 901

11. On field day, Nitin jumped $4\frac{7}{12}$ feet and Anil jumped $3\frac{1}{6}$ feet. How much farther did Nitin jump than Anil?

(a) 2 feet

(b) $1\frac{5}{6}$ feet

(c) $1\frac{5}{12}$ feet

(d) $\frac{5}{12}$ feet

Sol: (c)

$$\begin{aligned} 4\frac{7}{12} - 3\frac{1}{6} &= \frac{55}{12} - \frac{19}{6} \\ &= \frac{55-38}{12} = \frac{17}{12} = 1\frac{5}{12} \end{aligned}$$

12. If $GH = BC$, $AJ = 2DE$, $JI = \frac{1}{2} AB$, $IH = CD + DE + GH$.

The Perimeter of the given figure is

(a) 47 units

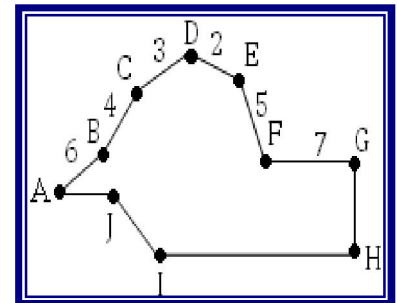
(b) 50 units

(c) 43 units

(d) 41 units

Sol: (a)

47 units



13. Who is the father of Geometry ?

(a) Pythagoras

(b) Thales

(c) Archimedes

(d) Euclid.

Sol: (d)

Euclid

14. A milkman mixes 20 liters of water with 80 liters of milk. After selling one-fourth of this mixture he adds water to replenish the quantity that he has sold. What is the current proportion of water to milk?

(a) 3:2

(b) 2:3

(c) 3: 4

(d) 4:5

Sol: (b)

Total Mixture = 20 + 80 = 100 litres

Sold mixture = $\frac{1}{4} \times 100 = 25$ litres

Replusing mixture = 75 litres

\therefore Added water = 25 litres.

water mixed in 100 litres mixture = 20 litres

water mixed in 75 litres mixture = $\frac{20}{100} \times 75 = 15$ litres

Total water added = 25 + 15 = 40

Total mixture = 100

\therefore Milk = 100 - 40 = 60.

\therefore Water Milk = 40 : 60 = 2 : 3

15. In the new budget, the price of a petrol rose by 10%, the percent by which one must reduce the consumption so that the expenditure does not increase is :

(a) $6\frac{1}{9}\%$

(b) $6\frac{1}{4}\%$

(c) $9\frac{1}{11}\%$

(d) 10%

Sol: (c)

Let price of petrol = Rs x

price hike = 10%

i.e. $\frac{10}{100} \times x = \frac{x}{10}$

New price = $x + \frac{x}{10} = \frac{11x}{10}$

earlier consumption = y litra

earlier investment = xy .

A.T.Q.,

Present investment = previous investment

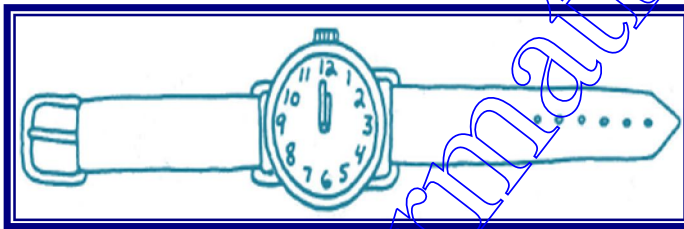
$$\left(\frac{11x}{10}\right) (\text{present petrol consumption}) = xy$$

$$\text{present petrol consumption} = (xy) \times \frac{10}{11x} = \frac{10y}{11}$$

$$\text{Reduction in consumption} = y - \frac{10y}{11} = \frac{y}{11}$$

$$\% \text{ age} = \frac{y/11 \times 100}{y} = \frac{100}{11} = 9\frac{1}{11}\%$$

16. Watch out for this wristwatch. It's all wound up – but it's headed in the wrong direction! At 12:00 it always shows the correct time. Then its hands move to the left instead of the right. See if you can figure out what time it is when the watch shows the times 8:30



(a) 8.30

(b) 3.30

(c) 5.30

(d) 4.30

Sol: (b) 3.30

17. $a \times (b + c) = a \times b + a \times c$, the property is

(a) associative

(b) commutative

(c) distributive

(d) anti-commutative

Sol: (c) distributive

18. Like dozen is 12 articles, What is "score" equals to

(a) 20

(b) 30

(c) 24

(d) 36

Sol: (a) 20

19. An old lady deposited one rupee with a shopkeeper on interest. The interest rate told to her was to make her money double every year. After fifteen years, she demanded back her money. How much should she get?

- (a) Equals to Rs.30
(b) more than Rs.30 but less the Rs.300
(c) more than Rs.30000
(d) less then Rs.30000

Sol: (c)

more than Rs.30000

20. If $2x + 3y = 24$ and $2x - 3y = 12$, then the value of xy is _____ .

- (a) 10
(b) 12
(c) 18
(d) 14

Sol: (c)

$$2x + 3y = 24 \quad 2x - 3y = 12$$

$$4x = 36$$

$$x = \frac{36}{4} = 9$$

$$2(a) + 3y = 24$$

$$3y = 24 - 18 = 6$$

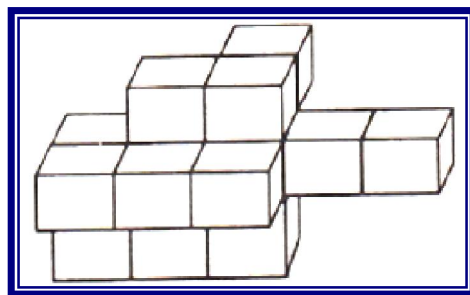
$$y = 2$$

$$xy = 18$$

21. The solid below is made up of cubes. How many cubes required making the given solid?

- (a) 14
(b) 16
(c) 18
(d) 19

Sol: (a) 14



22. A school bus travels from Delhi to Chandigarh. There are 4 children, 1 teacher and 1 driver in the bus. Each child has 4 backpacks with him. There are 4 dogs sitting in each backpack and every dog has 4 puppies. What is the total number of eyes in the bus?

- (a) 256 (b) 128
(c) 657 (d) 652

Sol: (d)

No. of teacher = 1

No. of driver = 1

eyes of teacher and driver = $(1+1) \times 2 = 4$

No. of children = 4

eyes of children = $4 \times 2 = 8$

No. of dogs in each backpack = $4 \times 4 = 16 \times 4 = 64 \times 2 = 128$ eyes

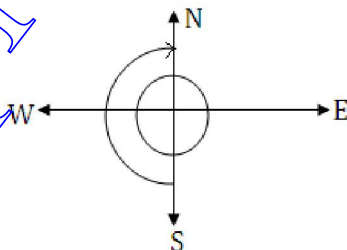
eyes of puppies = $64 \times 4 = 256 \times 2 = 512$ eyes

Total eyes = $4 + 8 + 128 + 512 = 652$ eyes

23. The direction in which you reach, if you move from South and take one and a half revolution clockwise

- (a) West (b) East
(c) South (d) North

Sol: (d) North



Section-B {for 7th and 8th class}

26. Three traffic lights at three different road crossing change after 48 seconds, 72 seconds and 100 seconds respectively, If they all change simultaneously at 8 a. m., at what time will they again change simultaneously?

(a) 10 a.m.

(b) 9 a.m.

(c) 11 a.m.

(d) 10.30 a.m.

Sol: (b)

L.C.M of 48, 72, 100

$$48 = 2 \times 2 \times 2 \times 2 \times 3$$

$$72 = 2 \times 2 \times 2 \times 3 \times 3$$

$$100 = 2 \times 2 \times 5 \times 5$$

$$\text{is} = 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 5 \times 5$$

$$= 3600 \text{ sec} = 1 \text{ hour}$$

27. If Monday is coded as 123456 and Belt is coded as 0789, how would you encode the word TOMBAY?

(a) 921056

(b) 460528

(c) 290165

(d) 258702

Sol: (a)

MONDAY	BELT
1 2 3 4 5 6	0 7 8 9

TOMBAY
9 2 1 0 5 6

28. $(x\% \text{ of } y + y\% \text{ of } x) =$

(a) $x\%$ of y

(b) $y\%$ of x

(c) 2% of xy

(d) $x\%$ of xy

Sol: (c)

$$\frac{x}{100} \times y + \frac{y}{100} \times x$$

$$= \frac{2xy}{100} = \frac{2}{100} \times xy$$

29. In an examination, a student scores 4 marks for every correct answer and loses 1 mark for every wrong answer. If he attempts all 75 questions and secures 125 marks, the number of questions he attempted correctly, is

- (a) 35 (b) 40
(c) 42 (d) 46

Sol: (b)

If the number of correct answer be x , then the number of incorrect answer is $(75 - x)$.

$$\therefore 4x(75 - x) = 125 \text{ or } x = 40$$

30. Calculate the size of angle y in the adjoining figures :

- (a) 27° (b) 43°
(c) 23° (d) 60°

Sol: (c)

$$x + y = 60^\circ \quad (\text{alternate angle})$$

$$y + z = 143 \quad (\text{alternate angle})$$

$$x + y + z = 180^\circ \quad (\text{linear pair})$$

$$60 + z = 180$$

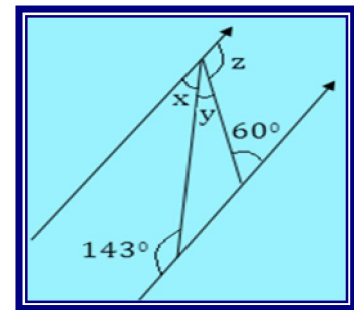
$$z = 180^\circ - 60^\circ$$

$$= 120^\circ$$

$$y + 120^\circ = 143^\circ$$

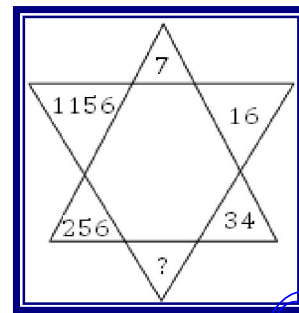
$$y = 143^\circ - 120^\circ$$

$$= 23^\circ$$



31. The missing number (?) is

- (a) 72 (b) 49
(c) 68 (d) 66



Sol: (b)

$$(34)^2 = 1156$$

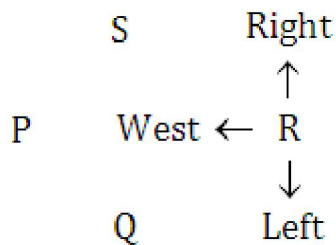
$$16 = 256$$

$$(7)^2 = 49$$

32. P, Q, R and S are playing carom game. P, R and S, Q are partners. S is to the right of R who is facing west. Then Q is facing what direction?

- (a) North (b) south
(c) East (d) West

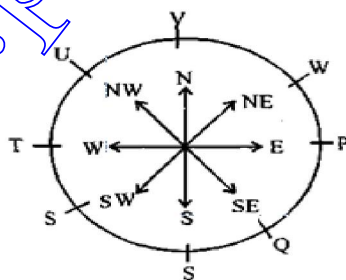
Sol: (d)



33. P, Q, R, S, T, U, V, W are sitting around a round table in the same order, for group discussion at equal distance. Their position is clockwise. If V sits in the north, then what will be the position of S?

- (a) East (b) South-east
(c) South (d) South-west

Sol: (d) Clearly, the seating arrangement is as shown in the adjoining figure. So, S is at the south-west position



34. Ravi is not wearing white and Ajay is not wearing blue. Ravi and sohan wear different colour. Sachin alone wear red. What is sohan coloured, if all four them are wearing different colour.

(a) red

(b) blue

(c) white

(d) can't say

Sol:(d)

The fourth colour and some more information are required

35. How many times in a day, those of two hands of a clock coincide?

(a) 11

(b) 12

(c) 22

(d) 24

Sol: (c)

22

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Section-C {for 8th only}

36. Number by which 19602 be divided, So that the quotient is a perfect square is

- (a) 2 (b) 9
(c) 3 (d) 4

Sol: (a)

Let us start from 1st option

$$\frac{19602}{2} = 9801$$
$$= 7 \times 7 \times 7 \times 7$$
$$= (49)^2$$

37. If $x + \frac{1}{x} = 4$, then the value of $x^2 + \frac{1}{x^2}$ is

- (a) 12 (b) 16
(c) 14 (d) 20

Sol: (c)

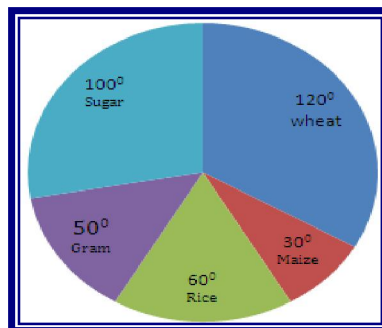
$$x + \frac{1}{x} = 4$$

$$\left(x + \frac{1}{x}\right)^2 = x^2 + \frac{1}{x^2} + 2x \cdot \frac{1}{x}$$

$$(4)^2 = x^2 + \frac{1}{x^2} + 2 = 16 - 2 = 14$$

38. The pie chart given below shows the annual agricultural production of an Indian state. If the total production of all the commodities is 81000 tonnes, then production of rice and sugar respectively is

- (a) 22500, 13500
(b) 13500, 22500
(c) 13500, 27000
(d) 27000, 22500



Sol: (b)

$$\text{Production of rice} = \frac{60}{360} \times 81000 = 13500$$

$$\text{Production of sugar} = \frac{100}{360} \times 81000 = 22500$$

39. The sum of the powers of the prime factors in 108×192 is

- (a) 5 (b) 7
(c) 8 (d) 12

Sol: (d)

$$108 \times 192$$

$$(2 \times 2 \times 3 \times 3 \times 3) \times (2 \times 2 \times 2 \times 2 \times 2 \times 3)$$

$$(2^2 \times 3^3) \times (2^6 \times 3^1)$$

$$2^8 \times 3^4 = \text{sum of powers} = 8 + 4 = 12$$

40. The factors of $x^4 + y^4 + x^2y^2$ are

- (a) $(x^2 + y^2)(x^2 + y^2 - xy)$ (b) $(x^2 + y^2)(x^2 - y^2)$
(c) $(x^2 + y^2 + xy)(x^2 + y^2 - xy)$ (d) Factorization is not possible

Sol: (c)

$$x^4 + y^4 + x^2y^2$$

$$(x^2)^2 + (y^2)^2 + 2x^2y^2 - x^2y^2$$

$$(x^2 + y^2)^2 - (xy)^2$$

$$(x^2 + y^2 - xy)(x^2 + y^2 + xy).$$

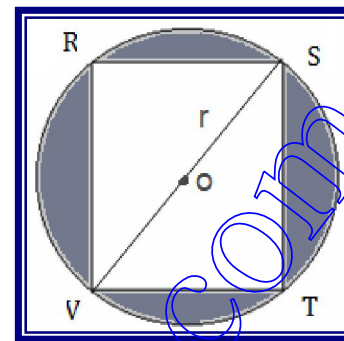
41. The number which is exactly divisible by 99 is

- (a) 3572404 (b) 135792
(c) 913464 (d) 114345

Sol: (d)

$$114345$$

42. In the given figure, RSTV is square inscribed in a circle with centre O and radius r. The total area of shaded region is _____.



(a) $r^2 (\pi - 2)$

(b) $2r^2(2 - \pi)$

(c) $\pi (r^2 - 2)$

(d) $8r^2 - 8r$

Sol: (a)

Let side of square = x

$$x^2 + x^2 = (2r)^2$$

$$2x^2 = 4r^2$$

$$x^2 = 2r^2$$

$$x = \sqrt{2} r$$

$$\text{Area of square} = (\sqrt{2} r)^2 = 2r^2$$

$$\text{shaded Area} = \pi r^2 - 2r^2 = r^2 (\pi - 2).$$

43. A is the father of C and D is the son of B. E is the brother of A. If C is the sister of D, how is B related to E?

(a) Daughter

(b) Brother-in-law

(c) Husband

(d) Sister-in-law

Sol: (d)

A is the father of C and C is the sister of D means A is the father of D. Since D is the son of B so B is the mother of D and wife of A. Also, E is the brother of A so B is the sister-in-law of E.

44. The perimeter of a square is twice the perimeter of a circle and their areas are AS and AC respectively then

(a) $AS > AC$

(b) $AC > AS$

(c) $AS = 2AC$

(d) $AS = AC$

Sol: (a)

$$4 \times \text{side} = 2 (2 \pi r)$$

$$\text{side} = \pi r$$

$$\text{Area of circle} = \pi r^2$$

$$\text{Area of square} = (\text{side})^2 = (\pi r)^2 = \pi^2 r^2$$

AS > AC

45. Two poles, 15 m and 30m height, stand upright in a playground. If their feet be 36m apart. The distance between their tops is :

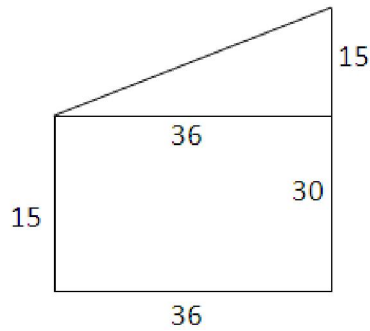
(a) 21 m

(b) 39 m

(c) 41 m

(d) 36m

Sol: (b)



$$\text{Distance between tops} = \sqrt{(36)^2 + (15)^2}$$

$$= \sqrt{1296 + 225} = \sqrt{1521} = 39$$

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