GS FOUNDATION
BATCH FOR CSE 2024

Worksheet CSAT - 03

(Basic Geometry)

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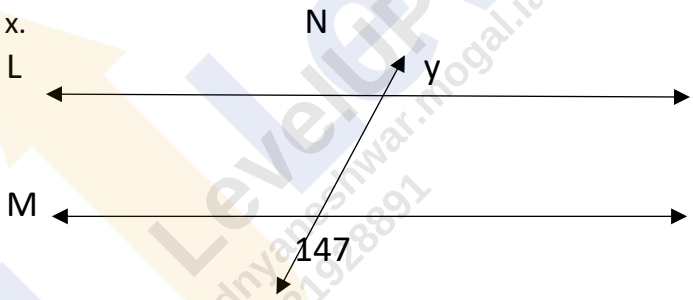
Worksheet 3 Basic Geometry

1. Consider following statements:
I. Two points are always collinear
II. If three points in a plane are not collinear then they always form a triangle
III. Two parallel lines are always concurrent
Which of the statements above is/are correct?
A. 1 and 2 only
B. 1 and 3 only
C. 2 and 3 only
D. 1, 2 and 3

2. What would be the measure of supplementary angle of complimentary angle of 60 degree in degrees?
A. 30
B. 60
C. 120
D. 150

3. Consider following statements:
I. 3 right angles make a complete angle while 2 right angles make a straight angle
II. Sum of largest acute integer angle and smallest obtuse natural number angle can never be more than straight angle
Which of the statements above is/are correct?
A. 1 only
B. 2 only
C. Both 1 and 2
D. Neither 1 nor 2

4. Find x.



What is the measure of angle 'y'
A. 23.33
B. 33
C. 43
D. 53

5. A pole of length 15 yards is fixed by the municipality of Delhi. Kritika is walking past the pole and after walking 8 yards from the pole she realises that, there's a Siberian crane (is it endangered or critically endangered she wondered!) on top of the pole. What is the direct distance of the bird from her?

A. 25 yards
B. 20 yards
C. 17 yards
D. 16.66 yards

6. A regular hexagon ABCDEF is inscribed inside a circle with centre 'O'. A chord AB will subtend some angle X at centre O. At how many vertices of hexagon will the same chord subtend angle of X/3?

A. 0
B. 2
C. 4
D. 6

7. Quadrilateral ABCD is such that, diagonal AC passes through a centre of a circle. Which of the following will always be true about ABCD?

A. ABCD is a kite
B. Adjacent angles of ABCD are equal
C. Opposite angles of ABCD are supplementary
D. At most one angle of ABCD can be a right angle

8. If length, breadth and height of a cuboid are increased by 10%, 15% and 20% respectively, what will be the ratio of new volume to the old volume

A. 759: 500
B. 3: 1
C. 533: 300
D. 145: 100

9. If Volume of the cube of side 'a' is to be trebled, what should be the new side length?

A. $\sqrt{3}a$
B. $\sqrt[3]{3}$a
C. $3a$
D. $\frac{a}{3}$

10. If a mosquito is to travel from the centre of a cuboidal room to a corner, what is the least distance he needs to travel given that, length, breadth and height of room are 8 metres, 6 metres and 24 metres

A. 19 metres
B. 16.66 metres
C. 15 metres
D. 13 metres

11. The slant height of a right circular cone is 10 m and its height is 8 m. Find the area of its curved surface.

A. 30 m2
B. 40 m2
C. 60 m2
D. 80 m2

12. What is the total surface area of a right circular cone of height 14 cm and base radius 7 cm?

A. 344.35 cm2
B. 462 cm2
C. 498.35 cm2
D. None of these

13. How many bricks, each measuring 25 cm x 11.25 cm x 6 cm, will be needed to build a wall of 8 m x 6 m x 22.5 cm?

A. 5600
B. 6000
C. 6400
D. 7200

14. If length, breadth and height of a cuboid is increased by 10% each, by what percentage the volume would increase?

A. 10%
B. 30%
C. 33.1%
D. 33.33%

15. If volume of a cylinder becomes 64 times when its height is kept the same, by what amount radius would have been increased?

A. Radius doubled
B. Radius became 4 times
C. Radius became 8 times
D. Radius became 16 times

16. Height and radius of a cylinder are in the ratio 3:2. If height is increased by 20% and radius is decreased by 10%, what would be the ratio of new volume to old volume of the cylinder.

A. 123: 125
B. 443: 500
C. 987: 1000
D. 243: 250

17. A right triangle with sides 3 cm, 4 cm and 5 cm is rotated the side of 3 cm to form a cone. The volume of the cone so formed is

A. $12\pi cm^3$
B. $18\pi cm^3$
C. $24\pi cm^3$
D. $30\pi cm^3$

18. In a shower, 5 cm of rain falls. The volume of water that falls on 1.5 hectares of ground is (1 hectare = 10000 m^2)

A. 75 m^3
B. 750 m^3
C. 7500m^3
D. 7.5m^3

19. A hall is 15 m long and 12 m broad. If the sum of the areas of the floor and the ceiling is equal to the sum of the areas of four walls, the volume of the hall is:

A. 720
B. 900
C. 1200
D. 1800

20. 66 cubic centimetres of silver is drawn into a wire 1 mm in diameter. The length of the wire in metres will be:

A. 84
B. 90
C. 168
D. 336

21. A hollow iron pipe is 21 cm long and its external diameter is 8 cm. If the thickness of the pipe is 1 cm and iron weighs 8 g/cm3, then the weight of the pipe is:

A. 3.6 kg
B. 3.696 kg
C. 36 kg
D. 36.9 kg

22. A boat having a length 3 m and breadth 2 m is floating on a lake. The boat sinks by 1 cm when a man gets on it. The mass of the man is: (Take density of water = 1000kg/m^3)

A. 12 kg
B. 60 kg
C. 72 kg
D. 96 kg

Solutions:

1. A
2. D
3. B
4. B
5. C
6. A
7. C
8. A
9. B
10. D
11. C
12. C
13. C
14. C
15. C
16. D
17. A
18. B
19. C
20. A
21. B
22. B