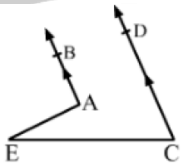
1. A military tent is in the form of a right circular cone 21 dm in height, the diameter of the base being 4 m. If 6 men sleep in it, find the average number of cubic decimetres of air surface per man. [2]

2. Simplify: $\frac{2+\sqrt{3}}{2-\sqrt{3}} + \frac{2-\sqrt{3}}{2+\sqrt{3}} + \frac{\sqrt{3}-1}{\sqrt{3}+1}$ [2]

3. P and Q are the mid-points of the opposite sides AB and CD of a parallelogram ABCD. AQ intersects DP at S and BQ intersects CP at R. Show that PRQS is a parallelogram. [3]

4. In the given figure, AB || CD. Prove that $\angle BAE - \angle DCE = \angle AEC$. [3]

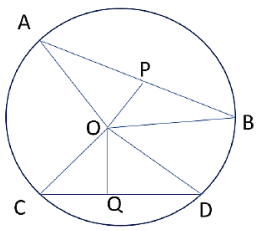


5. The monthly profits (in Rs) of 100 shops are distributed as follows: [3]

Profits per shop:	0-50	50-100	100-50	150-200	200-250	250-300
No. of shops:	12	18	27	20	17	6

Draw a histogram for the data and show the frequency polygon for it.

6. **Read the following text carefully and answer the questions that follow:** [6]
Rohan draws a circle of radius 10 cm with the help of a compass and scale. He also draws two chords, AB and
CD in such a way that the perpendicular distance from the center to AB and CD are 6 cm and 8 cm respectively.
Now, he has some doubts that are given below.



i. Show that the perpendicular drawn from the Centre of a circle to a chord bisects the chord. (1)
ii. What is the length of CD? (1)
iii. What is the length of AB? (2)
iv. How many circles can be drawn from given three noncollinear points? (2)

7. **Read the following text carefully and answer the questions that follow:** [6]

Reeta was studying in the class 9th C of St. Surya Public school, Mehrauli, New Delhi-110030

Once Ranjeet and his daughter Reeta were returning after attending teachers' parent meeting at Reeta's school.

As the home of Ranjeet was close to the school so they were coming by walking.

Reeta asked her father, "Daddy how old are you?"

Ranjeet said, "Sum of ages of both of us is 55 years, After 10 years my age will be double of you.

i. What is the second equation formed? (1)

ii. What is the present age of Reeta in years? (1)

iii. What is the present age of Ranjeet in years? (2)

iv. If the ratio of age of Reeta and her mother is 3 : 7 then what is the age of Reeta's mother in years? (2)

TQRCG

NEET IIT-JEE BOARD G10 EDUCATIONAL PLATFORM ESTD: 2005