7th – Lines and Angles I

A **Line Segment** has two end points. When we extend a line segment in both directions, we get a **line**. When a segment is extended only in one direction, we get a **ray**.

Pairs of Angles

1. Complementary Angles: If the sum of two angles is 90^0, the angles are said to be **Complementary Angles.**

2. Supplementary Angles: If the sum of two angles is 180^0, the angles are said to be **Supplementary Angles.**

3. Adjacent Angles: Two angles are called adjacent angles if:

(i) They have a common vertex.

(ii) They have a common arm.

(iii) The other arms are on opposite sides of the common arm.

4. Linear Pair: A pair of adjacent angles is called a linear pair if their outer arms are in a straight line.

5. Vertically Opposite Angles: Two angles formed by two intersecting lines having no common arm are called **Vertically Opposite Angles.**

Exercise:

Q1: Identify which of the following pairs of angles are complementary and which are supplementary:

(a) 64^0 ,56^0 (b)120^0, 60^0 (c)45^0,55^0 (d)25^0,65^0 (e)15^0,75^0 (d)10^0,75^0

Q2: Find the angle which is equal to:

(i) its complement

(ii) 4/5 of its supplement

(iii) 2/3 of its complement

Q3: Two supplementary angle differ by 46^0. Find the angles.

Q4: Two supplementary angle differ by 34^0. Find the angle.

Q5: Two complementary angles are in the ratio 7: 8. Find the angles.

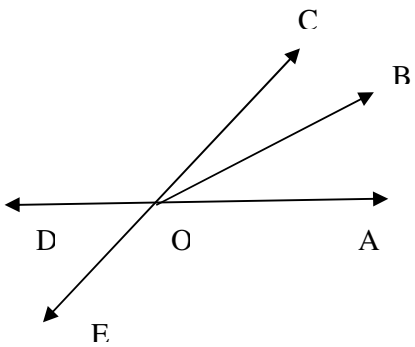
Q6: The measure of two supplementary angles are $(3x + 15)^0$ and $(2x + 5)$. Find the value of x.

Q7: The difference in the measures of two complementary angles is 120. Find the measures of the angles.

Q8: Two complementary angles are such that one is double the other. Find the measurement of each angle.

Q9: Two supplementary angles are such that one is $\frac{4}{5}$ of the other. Find them.

Q10: An angle is $\frac{2}{3}$ of its supplement. What is its magnitude?



Q11: The difference in the measures of two complementary angles is 12°. Find the measure of the angles.

Q12: Among two supplementary angles the measure of the larger angle is 44°, more than the measure of the smaller. Find their measure.

Q13: Find the angle, which is equal to its supplementary.

Q14: The sum of two adjacent angles is 140. If one angle is thrice that of the other. Find the two angles.

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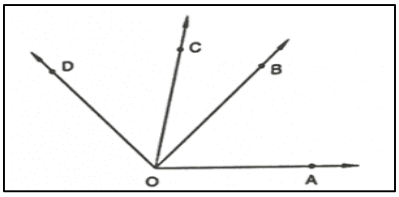
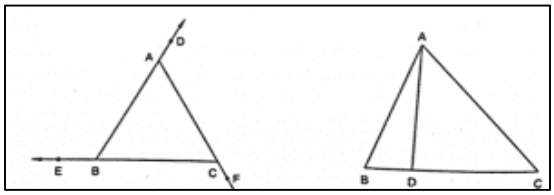
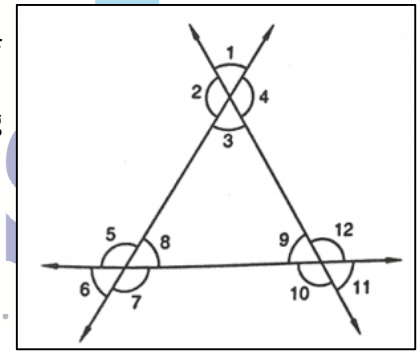
Q15: Two supplementary angles are in the ratio of 5:7.Find the angles.
Q16: State True or False:
a) Two obtuse angles form a linear pair.
b) Two acute angles form a linear pair.
c) If two adjacent angles are complementary they form a right angle.
d) An Angle is formed by the intersection of lines or line segments or rays.
Q16: The supplement of an angle is 165, then its complement is?
Q17: An angle is equal to five times its complement. Determine its measure.
Q18: Find the complement of:
1. 27 2) 67 3) 37 4) 22 5) 17 6) 29 7) 44 8) 38
Q19: Write down each pair of adjacent angles shown in figure given. Figure 1

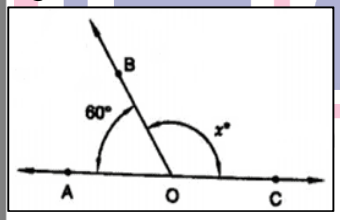


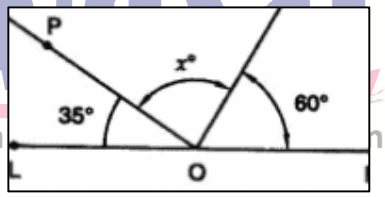
Q20: In figure, name all the pairs of adjacent angles. Figure 2.
Can two obtuse angles be supplementary, if both of them be:
(i) obtuse? (ii) right? (iii) acute?

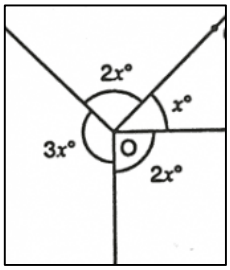


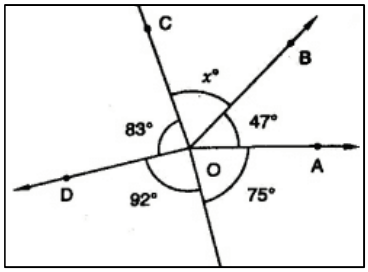
Q21: If the complement of an angle is 28◦, then find the supplement of the angle.
Q22: In Fig 3, name each linear pair and each pair of vertically opposite angles.
Q23: Find the value of x and y in each of the following figures:

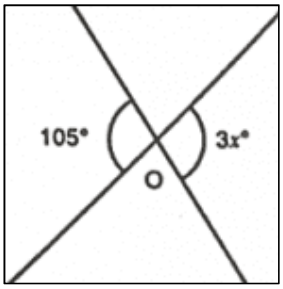


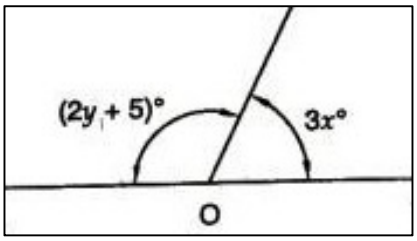


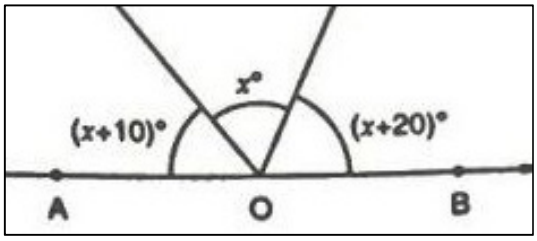












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