GRADE: 7

- **SUBJECT: Mathematics**
- **LESSON: Lines and Angles**
- **DURATION: 2½ hrs**
- **MAX MARKS: 80**

Instructions:

1. The time given at the head of this Paper is the time allowed for writing the answers.
2. You will not be allowed to write during the first 10 minutes. Use this time to read the question paper carefully.
3. Attempt **all questions from Section A** and **any four questions from Section B**.
4. All working, including rough work, must be clearly shown.
5. Omission of essential working will result in loss of marks.

SECTION A (4 × 10 = 40 marks)

(Answer all questions)

1. **Choose the correct option:**
   a) If two angles are complementary, their sum is:
   - (i) 180°
   - (ii) 90°
   - (iii) 360°
   - (iv) 45°

   b) If two lines are **parallel**, then their corresponding angles are:
   - (i) Equal
   - (ii) Supplementary
   - (iii) Complementary
   - (iv) None of these

c) An angle that measures more than **90° but less than 180°** is called:

- (i) Right Angle
- (ii) Obtuse Angle
- (iii) Acute Angle
- (iv) Reflex Angle

d) If one angle of a linear pair is **65°**, the other angle will be:

- (i) 115°
- (ii) 90°
- (iii) 120°
- (iv) 25°

2. **Solve the following:**
   a) Find the supplement of **117°**.
   b) Find the complement of **53°**.
   c) Two complementary angles are in the ratio **2:3**. Find both angles.

3. **Find the value of x:**
   a) If two vertically opposite angles are given as **(4x + 10)°** and **(2x + 50)°**, find the value of x.
   b) Two supplementary angles are in the ratio **7:2**. Find both angles.

4. **State whether the following statements are TRUE or FALSE:**
   a) Two obtuse angles can be supplementary.
   b) Adjacent angles always form a linear pair.
   c) If two angles form a linear pair, they are always supplementary.
   d) Two right angles can be complementary.

5. **Solve the following problems:**
   a) A transversal intersects two parallel lines. One of the angles formed is **75°**. Find the corresponding, alternate, and co-interior angles.
   b) In the given figure, **∠AOB = 40°** and **∠BOC = 2x + 20°**. Find the value of x if **AOB and BOC form a linear pair**.

SECTION B (4 × 10 = 40 marks)

(Answer any four questions)

6. **Graph-Based Question:**
   The table below shows the number of students who scored different marks in a test:

Marks	**10**	**20**	**30**	**40**	**50**
Students	4	6	10	8	12

   a) Represent this data using a **bar graph**.
   b) How many students scored more than 30 marks?

7. **Solving for Angles:**
   a) In the given figure, **two parallel lines are cut by a transversal**. If one alternate interior angle is **65°**, find all the other angles formed.
   b) Two angles are in the ratio **5:4**, and they form a linear pair. Find the angles.

8. **Solving Equations:**
   a) Find the value of x: **5(x - 2) + 3 = 4x + 7**.
   b) The angles of a quadrilateral are in the ratio **3:4:5:6**. Find each angle.

9. **Application-Based Question:**
   a) A ladder leans against a wall and makes an angle of **65°** with the ground. Find the angle made with the wall.
   b) A car is traveling at **60 km/h**. How much distance will it cover in **20 minutes**?

10. **Higher Order Thinking Skills (HOTS):**
    a) The sum of three consecutive angles on a straight line is **180°**. If one angle is **x**, the second is **(x + 10)°**, and the third is **(x + 20)°**, find the value of x.
    b) In the figure, **∠ABC = 5x + 10°** and **∠DEF = 3x + 50°**. If they are vertically opposite angles, find the value of x and both angles.

END OF THE QUESTION PAPER