

Chapter 02 Lines and Angles

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MINDMAP

- Point
A precise location in space
Denoted by a capital letter (e.g., A, B)
- Line
Extends infinitely in both directions
No endpoints
Denoted as $\leftrightarrow AB$ or line l
- Line Segment
Part of a line with two endpoints
Fixed length
Denoted as \overline{AB}
- Ray
Part of a line with one endpoint and extends infinitely in one direction
Denoted as $AB\rightarrow$
- Intersecting Lines
Two lines that meet at a point
Example: $\leftrightarrow AB$ and $\leftrightarrow CD$ intersect at point P
- Parallel Lines
Lines that never meet, however far extended
Always same distance apart
Denoted as $AB \parallel CD$
- Angle
Formed by two rays with a common endpoint (vertex)
Measured in degrees ($^\circ$)
- Types of Angles
Right angle: 90°
Straight angle: 180°
Acute angle: $< 90^\circ$
Obtuse angle: $> 90^\circ$ and $< 180^\circ$
Reflex angle: $> 180^\circ$ and $< 360^\circ$
- Perpendicular Lines
Two lines intersecting at right angles
Denoted as $AB \perp CD$
- Perpendicular Bisector
A line that is perpendicular to a line segment and divides it into two equal parts

NOTES WITH RELEVANT EXAMPLES

1. Point
Example: Point O, Point M
2. Line
Example: $\leftrightarrow PQ$ represents a line passing through points P and Q
3. Line Segment
Example: $\overline{AB} = 5 \text{ cm}$ (has definite length)
4. Ray
Example: $OA \rightarrow$ starts at O and goes through A infinitely
5. Intersecting Lines
Example: The arms of a pair of scissors form intersecting lines
6. Parallel Lines
Example: Railway tracks are parallel
7. Right Angle
Example: Corner of a book = 90°
8. Acute Angle
Example: Angle between the hands of a clock at 1:00 = 30°
9. Obtuse Angle
Example: Angle between the hands of a clock at 5:00 = 150°
10. Straight Angle
Example: Angle formed by a straight line = 180°
11. Reflex Angle
Example: Angle between the hands of a clock at 8:00 going the long way = 240°
12. Perpendicular Lines
Example: The letter "L" shows perpendicular lines
13. Perpendicular Bisector
Example: Folding a paper strip exactly in half creates a perpendicular bisector

UNIT TEST

1. Define a ray. Give one example.
2. What is the measure of a right angle?
3. Name the type of angle that measures 125° .
4. Are the lines AB and CD parallel if they never meet?
5. Draw a line segment PQ of length 6 cm.
6. What do you call two lines that intersect at 90° ?
7. How many endpoints does a line segment have?
8. What is the angle formed by the hands of a clock at 3:00?
9. Is 180° a straight angle or a reflex angle?
10. True or False: A reflex angle is less than 180° .

WORKSHEET

1. Identify the following:
 - a) $\leftrightarrow XY$
 - b) \overline{AB}
 - c) $CD \rightarrow$
2. Name the type of angle:
 - a) 45°
 - b) 90°
 - c) 170°
 - d) 200°
3. Draw:
 - a) Two intersecting lines
 - b) A pair of parallel lines
 - c) An obtuse angle
4. Fill in the blanks:
 - a) A line has _____ endpoints.
 - b) A ray has _____ endpoint(s).
 - c) The point where two rays meet is called the _____.
5. State whether true or false:
 - a) A line segment has a definite length.
 - b) Parallel lines always intersect.
 - c) Perpendicular lines form right angles.
6. Give real-life examples of:
 - a) Parallel lines
 - b) Perpendicular lines
7. Draw a perpendicular bisector of a 8 cm line segment.
8. How many right angles make a straight angle?
9. Measure the following angles using a protractor (assume diagrams):
 - a) $\angle ABC =$ _____
 - b) $\angle DEF =$ _____
10. Write the symbol for:
 - a) Parallel lines
 - b) Perpendicular lines

SOLUTIONS – UNIT TEST

1. A ray is a part of a line that has one endpoint and extends infinitely in one direction. Example:
OA→
2. 90°
3. Obtuse angle
4. Yes
5. (Student to draw; label P and Q, length = 6 cm)
6. Perpendicular lines
7. Two
8. 90° (right angle)
9. Straight angle
10. False

SOLUTIONS – WORKSHEET

1. a) Line
b) Line segment
c) Ray
2. a) Acute angle
b) Right angle
c) Obtuse angle
d) Reflex angle
3. (Student to draw as per instructions)
4. a) No
b) One
c) Vertex
5. a) True
b) False
c) True
6. a) Railway tracks, edges of a notebook
b) Corner of a room, letter "T"
7. (Student to draw 8 cm segment, find midpoint, draw perpendicular line through it)
8. Two right angles ($90^\circ + 90^\circ = 180^\circ$)
9. (Assume diagrams provided; answers depend on given figures)
a) Example: 60°
b) Example: 120°
10. a) //
b) ⊥