Question Bank for Unit Test: Parallel Lines

Section A: Multiple Choice Questions (1 mark each)

1. **Which of the following is a property of parallel lines?**
    - a) They intersect at one point.
    - b) They intersect at multiple points.
    - c) They never meet and are always the same distance apart.
    - d) They form right angles with each other.
2. **If two parallel lines are cut by a transversal, the corresponding angles are:**
    - a) Always equal
    - b) Sometimes equal
    - c) Always supplementary
    - d) Sometimes supplementary
3. **In a parallelogram, the opposite angles are:**
    - a) Complementary
    - b) Supplementary
    - c) Always equal
    - d) Never equal
4. **If one angle of a triangle is 60° and the second angle is 80°, the third angle is:**
    - a) 40°
    - b) 60°
    - c) 80°
    - d) 100°
5. **Alternate interior angles are:**
    - a) Equal
    - b) Supplementary
    - c) Complementary
    - d) None of the above

Section B: Short Answer Questions (2 marks each)

6. **Define parallel lines. Give two real-life examples.**
7. **Draw two intersecting lines and label the angles formed. Identify the pairs of vertical angles.**
8. **Explain why the sum of the interior angles of a triangle is always 180°.**

9. What are co-interior angles? How do you find them when a transversal cuts two parallel lines?
10. In the figure below, lines lll and mmm are parallel. Calculate ∠1\angle 1∠1 if ∠2\angle 2∠2 is 120° and they are corresponding angles.

Section C: Problem-Solving Questions (4 marks each)

11. Draw two parallel lines and a transversal. Label all eight angles formed. Identify and measure the corresponding angles if one of them is 110°.
12. Given a parallelogram where one angle is 70°. Calculate the measures of the remaining three angles.
13. If one of the alternate interior angles formed by a transversal cutting two parallel lines is 75°, find the measures of all other angles formed by the transversal.
14. Draw a triangle with angles ∠A=50°\angle A = 50°∠A=50° and ∠B=60°\angle B = 60°∠B=60°. Calculate ∠C\angle C∠C and explain your method.
15. In a parallelogram, if one angle is (3x+15)°(3x + 15)°(3x+15)° and its adjacent angle is (2x−5)°(2x - 5)°(2x−5)°, find the value of xxx and the measures of all angles.

Section D: Application-Based Questions (5 marks each)

16. Explain with the help of a diagram how corresponding angles are formed when a transversal cuts two parallel lines. Include an example with numerical values.
17. A rectangular garden has dimensions 30 meters by 40 meters. Calculate the perimeter and the area of the garden. Also, explain why the opposite sides of the rectangle are parallel.
18. In a given figure, line ppp is parallel to line qqq. A transversal cuts these lines forming angles. If one of the angles is 4x4x4x and its corresponding angle is (5x−20)°(5x - 20)°(5x−20)°, find the value of xxx and the measures of the angles.
19. Two streets run parallel to each other, and a cross street intersects them forming several angles. If the angle between the first street and the

cross street is 75°, calculate the measures of all other angles formed by the intersection. Draw a diagram to illustrate your solution.

20. **A rhombus is a special type of parallelogram where all sides are equal. If one angle of a rhombus is 120°, calculate the measures of the other three angles and explain your reasoning.**

Answer Key

Section A: Multiple Choice Questions

1. c
2. a
3. c
4. a
5. a

Section B: Short Answer Questions

6. **Parallel lines** are lines that never meet and are always the same distance apart. Examples: railway tracks, edges of a ruler.
7. (Diagram needed)
    - Vertical angles: ∠1\angle 1∠1 and ∠3\angle 3∠3, ∠2\angle 2∠2 and ∠4\angle 4∠4
8. The sum of the interior angles of a triangle is always 180° because the angles around a point on a straight line add up to 180°.
9. **Co-interior angles** are angles on the same side of the transversal and inside the parallel lines. They sum to 180°.
10. ∠1=120°\angle 1 = 120°∠1=120° because corresponding angles are equal.

Section C: Problem-Solving Questions

11. (Diagram needed)

- Corresponding angles: 110°, 110°, 70°, 70°

12. Opposite angles in a parallelogram are equal, and adjacent angles sum to 180°.

- Other angles: 110°, 70°, 110°

13. (Diagram needed)

- Alternate interior angles: 75°, 75°
- Corresponding angles: 75°, 75°, 105°, 105°

14. ∠C=180°−50°−60°=70°\angle C = 180° - 50° - 60° = 70°∠C=180°−50°−60°=70°

15. (3x+15)°+(2x−5)°=180°(3x + 15)° + (2x - 5)° = 180°(3x+15)°+(2x−5)°=180°

- Solve for xxx: x=34°x = 34°x=34°
- Angles: 117°, 63°, 117°, 63°

Section D: Application-Based Questions

16. (Diagram needed)

- Example: 100°100°100° and 100°100°100°

17. Perimeter: 2(30+40)=1402(30 + 40) = 1402(30+40)=140 meters

- Area: 30×40=120030 \times 40 = 120030×40=1200 square meters
- Opposite sides are parallel due to the properties of rectangles.

18. 4x=5x−204x = 5x - 204x=5x−20

- Solve for xxx: x=20°x = 20°x=20°
- Angles: 80°80°80°, 80°80°80°, 100°100°100°, 100°100°100°

19. (Diagram needed)

- Angles: 75°, 105°, 75°, 105°

20. In a rhombus, opposite angles are equal.

- Other angles: 120°, 60°, 60°