

## Measuring Time Through the Ages

### A. Fill in the Blanks

1. If a transversal intersects two parallel lines, then the alternate interior angles are \_\_\_\_\_.
2. Two lines in a plane that are perpendicular to the same line are \_\_\_\_\_ to each other.
3. For a construction using the corresponding angles method, you must copy an \_\_\_\_\_ to a new vertex.
4. Parallel lines are always the same \_\_\_\_\_ apart.
5. If two lines in a plane do not intersect, they must be \_\_\_\_\_.

### B. Match the term in Column A with its correct description or diagram in Column B.

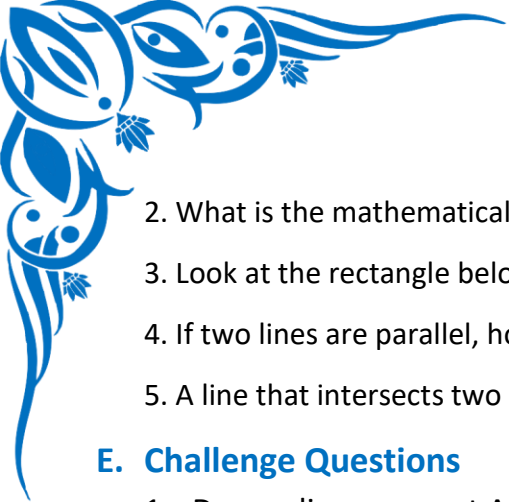
Column A	Column B
1. Parallel Lines	A. A line that intersects two or more other lines.
2. Transversal	B. Angles in the same relative position at each intersection.
3. Alternate Interior Angles	C. Lines in a plane that never meet.
4. Corresponding Angles	D. Two lines that intersect at a $90^\circ$ angle.
5. Perpendicular Lines	E. A pair of angles on opposite sides of the transversal and between the two lines.

### C. Practice Problems

1. Draw a line segment AB. Mark a point P above the line. Construct a line through P parallel to AB.
2. Draw a vertical line XY. Mark a point Z to its right. Construct a line through Z parallel to XY.
3. Draw a line m. Mark a point Q below the line. Using the alternate interior angles method, construct a line through Q parallel to m.
4. Draw a line n. Mark a point R on the line. First, construct a line perpendicular to n at point R. Then, mark a point S on the perpendicular line. Finally, construct a line through S parallel to n.
5. Draw a diagonal line DE. Mark a point F below it. Using the corresponding angles method, construct a line through F parallel to DE.

### D. Warm-up Questions

1. In your own words, what are parallel lines?



2. What is the mathematical symbol used to show that line AB is parallel to line CD?
3. Look at the rectangle below. Name one pair of parallel lines.
4. If two lines are parallel, how many times will they intersect?
5. A line that intersects two or more lines is called a \_\_\_\_\_.

### E. Challenge Questions

1. Draw a line segment AB of length 7 cm. Construct a line parallel to AB at a specific distance of 4 cm from it. (Hint: You will need to construct a perpendicular line first).
2. Given three non-collinear points P, Q, and R. Construct a point S such that PQRS forms a parallelogram.
3. Construct a line segment  $MN = 12$  cm. Using the properties of parallel lines, divide the segment MN into 4 equal parts.
4. Draw two parallel lines, l and m, that are 3 cm apart. Construct a third line, n, that is parallel to both l and m and lies exactly in the middle of them.
5. Construct a trapezium ABCD where AB is parallel to DC,  $AB = 8$  cm,  $AD = 4$  cm, and  $\angle DAB = 60^\circ$

### F. Word Problems & Application

1. **Bookshelf:** An architect is designing a bookshelf. The base is represented by a line b. Draw the line b and then construct two shelves parallel to the base, one 3 cm above the other.
2. **City Planning:** A map shows a straight road, Main Street. A new road, Elm Avenue, needs to be built parallel to Main Street, passing through the location of a new school, marked as point S. Draw a line for Main Street and a point S for the school, then construct the path of Elm Avenue.
3. **Railway Tracks:** A railway track consists of two parallel rails. Draw a single rail as a line segment PQ. Construct the second rail parallel to PQ at a distance of 2.5 cm.
4. **Zebra Crossing:** A zebra crossing is made of several parallel white stripes. Draw a line representing one edge of the road. Then, construct 4 parallel lines, each 1 cm apart, to represent the stripes.
5. **Logo Design:** Design a simple logo for a company called "Parallel Post." The logo must contain at least two pairs of parallel lines. Be creative!

### G. True or False

1. You can only construct parallel lines using a protractor and a ruler. \_\_\_\_\_
2. If a transversal intersects two lines, the corresponding angles are always equal. \_\_\_\_\_
3. Skew lines are parallel lines in three-dimensional space. \_\_\_\_\_
4. To construct a parallelogram, you need to construct two pairs of intersecting lines. \_\_\_\_\_
5. The symbol for perpendicular is. \_\_\_\_\_