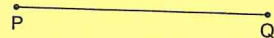


Intersecting, Perpendicular, and Parallel Lines

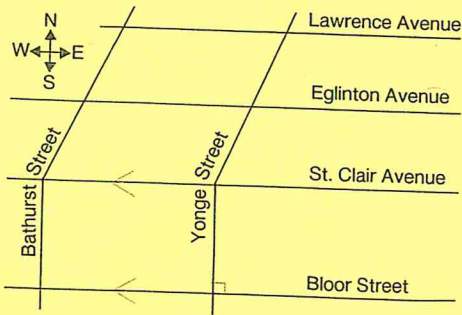
Line AB or BA continues without end in opposite directions. Its symbol is \overleftrightarrow{AB} or \overleftrightarrow{BA} .



Line segment PQ or QP is part of a line. It has two end points P and Q. Its symbol is \overline{PQ} or \overline{QP} .



Ray ST is part of a line. It has one end point and continues without end in one direction. Its symbol is \overrightarrow{ST} .



On the city map, Yonge Street and Lawrence Avenue meet, or **intersect**. Where they meet is their **intersection**.

Yonge and Bloor Streets intersect to form a square corner. They are **perpendicular**.

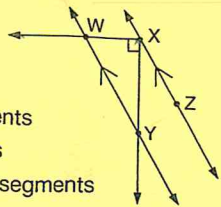
Bloor Street and St. Clair Avenue do not meet. They are **parallel**. This is shown by arrowheads pointing in the same direction.

Read

WORKING TOGETHER

- Use the map. Name three pairs.
 - streets that intersect
 - streets that are perpendicular
 - streets that are parallel
 - streets that are neither parallel nor perpendicular

- Name two.
 - parallel lines
 - parallel rays
 - parallel line segments
 - perpendicular rays
 - perpendicular line segments

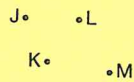


\overleftrightarrow{WY} \overleftrightarrow{WY}

- How many intersections are shown on the map?
 - in a line
 - in a ray
 - in a line segment

APPLICATIONS AND EXERCISES

- Name all the lines and rays that can be drawn using points J, K, L, and M.



- Point B is not in line XY.

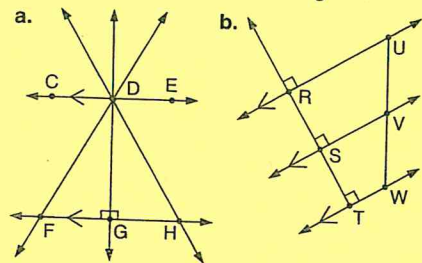


- Which of the letters show this?
 - intersecting line segments
 - perpendicular line segments
 - parallel line segments



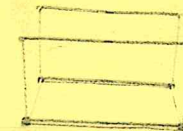
- How many lines can be drawn containing B and perpendicular to \overleftrightarrow{XY} ?
- How many lines can be drawn containing B and parallel to \overleftrightarrow{XY} ?
- Fold tracing paper to illustrate your answers to parts a and b.

- Name two parallel lines, two perpendicular line segments, and two points of intersection in the diagram.



- Which is suggested, parallel, perpendicular, or intersecting line segments?
 - the corner of a book
 - the opposite sides of a book
 - the twigs on a tree branch
 - the lines on a piece of ruled paper
 - the beam from a flashlight

- How many are in the model? Name them.



- Draw and name.
 - two perpendicular line segments
 - three parallel line segments
 - three lines intersecting at one point
 - ray QR parallel to line AB
 - \overleftrightarrow{ST} intersecting \overleftrightarrow{RS} and \overleftrightarrow{TU}

- line segments
- points of intersection
- pairs of parallel line segments
- pairs of perpendicular line segments

- Find the quotient using short division.
 - $2 \overline{)1376}$
 - $3 \overline{)1476}$
 - $5 \overline{)3885}$
 - $6 \overline{)21408}$
 - $7 \overline{)13566}$
 - $9 \overline{)51741}$

- Find the average.
 - \$148 earned by 4 students
 - 75 mm of snow in 6 d
 - 14 672 kg carried by 8 trucks

KEEPING SHARP