

LESSON 32

Drawing Pairs of Lines: Parallel, Intersecting, Perpendicular

Facts Practice: 64 Multiplication Facts (Test D in Test Masters)

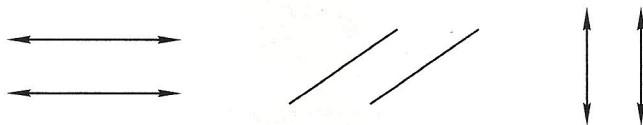
Mental Math: How many days are in a leap year? in a common year? Count by 12's from 12 to 84. Count by 5's from 3 to 53.

- a. How many is 2 dozen? 3 dozen? 4 dozen?
 b. $48 + 25$ c. $1200 + 340$ d. 50% of 20
 e. 25% of 20 f. 10% of 20 g. 7×32
 h. $4 \times 9, -1, \div 5, +1, \times 4$

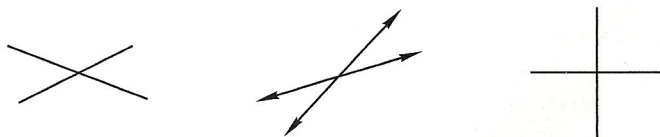
Problem Solving: Copy this multiplication problem and fill in the missing digits.

$$\begin{array}{r} 45 \\ \times \quad _ \\ \hline _0 \end{array}$$

Where lines "cross" we say that they **intersect**. If we draw two straight lines on the same flat surface, then either those lines will intersect or they will not intersect. Lines which go in the same directions and stay the same distance apart are called **parallel lines**. Thinking of train tracks can give us the idea of parallel lines. Here are pairs of parallel lines and parallel line segments.



Lines on the same surface that are not parallel are **intersecting lines**. Here are pairs of intersecting lines and intersecting line segments.



As we look at the third pair, we see that the segments intersect in a special way. Where they intersect, "square corners" are formed. Intersecting lines and segments that form square corners are **perpendicular**.

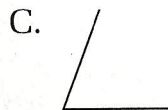
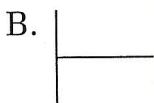
Activity Pair off with a partner. Draw a line segment. Then have your partner draw one line segment parallel to your segment and another segment perpendicular to your segment. Repeat the activity with the roles reversed.

Example 1 Draw a pair of intersecting lines which are not perpendicular.

Solution We are to draw two lines which intersect but do not form square corners. Many arrangements are possible.



Example 2 Which of the following do *not* appear to be perpendicular segments?



Solution Segments that are perpendicular meet and form square corners. The segments in A appear to be perpendicular. (You may need to turn the page slightly to help you see this.) The segments in B and D also appear to be perpendicular. The segments that do not appear to be perpendicular are those in choice C.

- Practice**
- Draw two parallel segments.
 - Draw two perpendicular lines.
 - Draw two segments that intersect but are not perpendicular.

Problem set
32

1. Draw a pair of intersecting lines that are ⁽³²⁾perpendicular.

2. Lani bought a kaleidoscope for \$4.19. If she paid for it with a \$10 bill, how much money should she get back? ⁽¹⁶⁾ Use a “some went away” pattern.