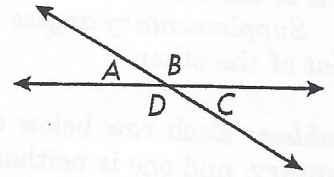
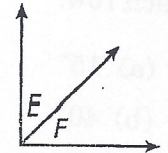


Lesson 7.4 Vertical, Supplementary, and Complimentary Angles

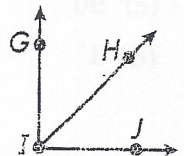
Vertical angles are the 2 angles opposite each other where 2 lines meet. In the figure to the right, $\angle A$ and $\angle C$ are vertical angles. $\angle B$ and $\angle D$ are also vertical angles. Vertical angles are **congruent**. They have the same measure.



Supplementary angles are 2 angles whose measures add up to 180° . In the figure to the right, $\angle A$ and $\angle B$ are supplementary. $\angle B$ and $\angle C$ are also supplementary.

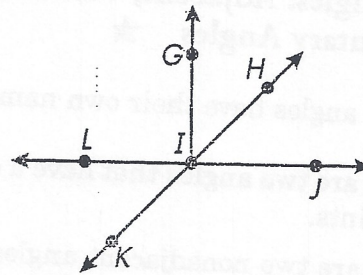
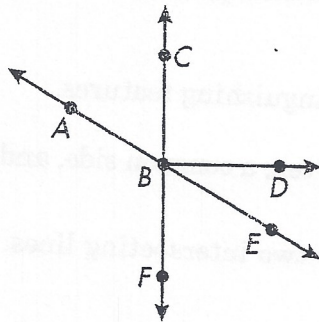


Complementary angles are 2 angles whose measures add up to 90° . In the figure to the right, $\angle E$ and $\angle F$ are complementary.



An **angle bisector** is a ray that divides an angle **exactly** in half. In the figure to the right, \vec{IH} is an angle bisector of $\angle GIJ$.

Use 3 letters to name each angle in the figures below.



1. Which pairs of angles are complementary?

\angle \angle , \angle \angle

2. Which pairs of angles are supplementary?

\angle \angle , \angle \angle , \angle \angle , \angle \angle , \angle \angle

\angle \angle , \angle \angle , \angle \angle , \angle \angle , \angle \angle

3. Which pairs of angles are vertical angles?

\angle \angle , \angle \angle , \angle \angle , \angle \angle

Name _____

Block _____

4-15 Complementary and Supplementary Angles ☆

Complementary angles are two angles whose sum equals 90° . One angle is the *complement* of the other.

Supplementary angles are two angles whose sum equals 180° . One angle is the *supplement* of the other.

Problem: Each row below contains five angles. Two are complementary, two are supplementary, and one is neither. Identify the complementary angles and supplementary angles in each row.

- | | | | | |
|----------------|-------------|-------------|-------------|-------------|
| (a) 15° | 115° | 125° | 65° | 75° |
| (b) 40° | 50° | 60° | 150° | 120° |
| (c) 90° | 70° | 100° | 80° | 20° |
| (d) 1° | 90° | 90° | 89° | 178° |

4-16 Pairs of Angles: Adjacent, Vertical, Complementary, and Supplementary Angles ☆

Special pairs of angles have their own names and distinguishing features.

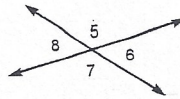
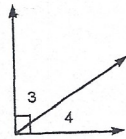
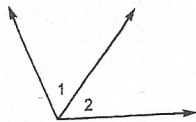
Adjacent angles are two angles that have a common vertex, a common side, and no common interior points.

Vertical angles are two nonadjacent angles formed by two intersecting lines. Vertical angles always have the same measure.

Complementary angles are two angles whose sum is 90° .

Supplementary angles are two angles whose sum is 180° .

Problem: Consider the angles below. Identify the angles as being adjacent, vertical, complementary, and/or supplementary.



(a) $\angle 1$ and $\angle 2$

(b) $\angle 3$ and $\angle 4$

(c) $\angle 5$ and $\angle 6$

(d) $\angle 5$ and $\angle 8$

(e) $\angle 6$ and $\angle 7$

(f) $\angle 6$ and $\angle 8$