

GEOMETRY: ANGLES

COMMON MISTAKES

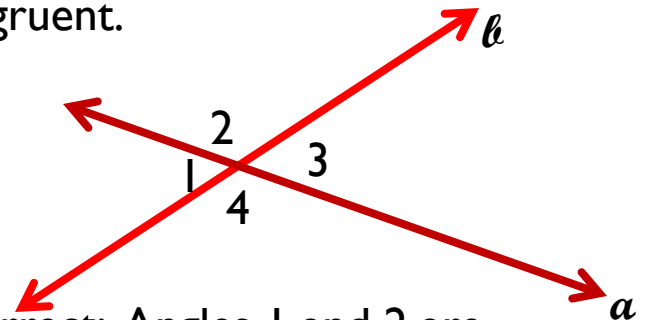
Geometry-Angles

Types and Definition of Various Angles

- ▶ **Types**-Vertical, Complementary and Supplementary, Adjacent, Straight
- ▶ **Vertical**-Definition
Vertical lines are lines formed when two lines intersect at a point.
- ▶ **Vertical Angles** are **congruent**(have the same measure),

Common Mistakes

- ▶ Not correctly identifying the vertical angles.
- ▶ Not realizing the angles are congruent.



- ▶ **Incorrect:** Angles 1 and 2 are congruent vertical angles.
- ▶ **Correct:** Angle 1 and Angle 3 are congruent vertical angles. Angle 2 and Angle 4 are congruent vertical angles.

Geometry-Angles continued

Types and Definition- Complementary and Supplementary

▶ **Complementary Angles**

are angles whose sum is 90° .

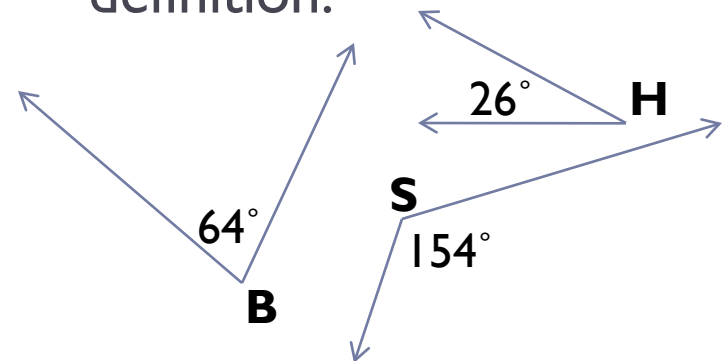
▶ **Supplementary Angles**

are angles whose sum is 180° .

Note: These angles do not have to “**touch**”.

Common Mistakes

- ▶ Confusing which term which goes with which definition.



- ▶ **Incorrect:** Angles B and H are supplementary angles.
- ▶ **Correct:** Angles B and H are **complementary angles**; Angles H and S are supplementary.

Geometry– Angles continued

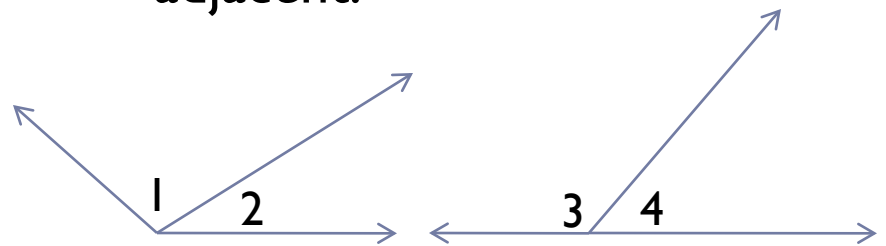
Types and Definition- Adjacent Angles and Linear Pairs

- ▶ **Adjacent Angles-** angles which share a common side or “touch”.
- ▶ **Linear Pair-** adjacent angles that are also **supplementary** (their measurements add up to 180°).

Note: Not all adjacent angles are linear pairs; however, ALL linear pairs are adjacent.

Common Mistakes

- ▶ Believing adjacent angles may only be complementary or adjacent.



- ▶ **Incorrect:** Angle 1 and 2 are an adjacent linear pair.
- ▶ **Correct:** Angles 1 and 2 are **adjacent**; Angle 3 and 4 are the **linear pair**.

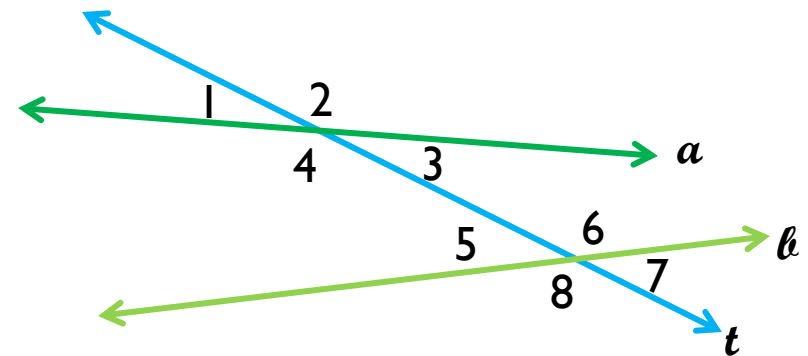
Geometry-Angles continued

Types formed by Intersecting lines and Transversals

- ▶ When a transversal line intersects two other lines, parallel or not, names are given to the angles formed based upon the position(s) in which they lie.
- ▶ **Corresponding Angles** occupy the same position with respect to the intersecting line and transversal (i.e. angles 1 and 5; 2 and 6; 3 and 7; 4 and 8)
- ▶ **Alternate Interior Angles** lie in the interior positions, but on opposite sides of the transversal. (i.e. angles 4 and 6; 3 and 5)
- ▶ **Alternate Exterior Angles** lie in the exterior positions, also on opposite sides of the transversal. (i.e. angles 1 and 7; 2 and 8)
- ▶ **Same-Side Interior Angles** occupy the interior positions on the same-side of the transversal. (i.e. angles 4 and 5; 3 and 6)
- ▶ **Same-Side Exterior Angles** also occupy the exterior positions but on the same-side of the transversal. (i.e. angles 1 and 8; 2 and 7)

Common Mistakes

- ▶ Incorrectly naming the angles formed by a transversal.



- ▶ **Incorrect:** Angles 2 and 6 are same-side interior angles.
- ▶ **Correct:** Angles 2 and 6 are corresponding angles.

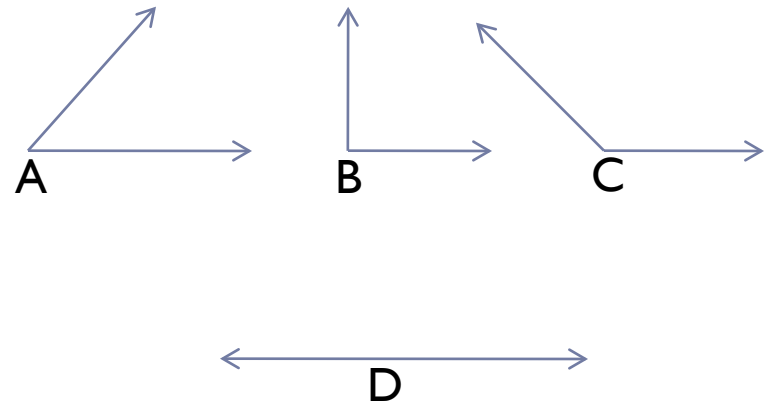
Geometry-Angles continued

Types defined by their Angle Measurements

- ▶ **Acute Angles** are angles whose measurements are between 0° and 90° (i.e. Angle A).
- ▶ **Right Angles** are angles whose measurements are 90° (i.e. Angle b).
- ▶ **Obtuse Angles** are angles whose measurements are between 90° and 180° (i.e. Angle C).
- ▶ **Straight Angles** are angles whose measurements are 180° (i.e. Angle D). Lines are examples of straight angles.

Common Mistakes

- ▶ Mistaking the definitions of angles based upon their measurements.



- ▶ **Incorrect:** Angle A is an obtuse angle.
- ▶ **Correct:** Angle A is an acute angle.