Geometry-Lines

Types and Definition of Various Lines

- **Types** - Parallel, Perpendicular, Transversal, Intersecting, and Skew

- **Parallel** - Definition
  Two or more lines that never intersect - meet at a point. Algebraically, parallel lines have the same slope.

Common Mistakes

- Not recognizing the slopes must be the same.

  Both lines have the same slope.
Geometry-Lines continued

Types and Definition - Transversals

- **Transversal Lines** - are any line(s) that “cut across” two or more lines.
- Transversal lines create angles when they cut across other lines—corresponding, exterior, etc.
- When transversal lines cut across parallel or perpendicular lines, the angles formed have certain relationships with each other—congruent, right, supplementary, etc.

Common Mistakes

- Failing to notice that the transversal must intersect either parallel or perpendicular for those special angle relationships.
- Not distinguishing which line(s) is/are the transversals when identifying specific types of angles formed.
Geometry– Lines continued

Types and Definition– Intersecting Lines

- **Intersecting Lines** - are lines that meet at one point. Parallel lines, Perpendicular lines, and Transversal lines all intersect.

Note: Two lines can only intersect at **one point**. That point is called the **point of intersection**.

Common Mistakes

- Confusing the definitions or relationships of angles formed by intersecting lines.
- Incorrect: Parallel lines intersect at right angles.
- Correct: **Perpendicular lines** intersect at right angles.
Skew Lines

- In 3-Dimensional solids, **Skew Lines** are lines (or segments) that would intersect if they were in the same plane.

- It is easier to identify skew lines if you think of “squishing” the planes of the solid and then you are able to recognize which lines those would be.

Common Mistakes

- Incorrectly calling lines skew that are in the same plane.

  - **Incorrect:** \(\overline{AE}\) and \(\overline{EF}\) are skew segments.

  - **Correct:** \(\overline{CD}\) and \(\overline{EF}\) are skew segments.