



AMART

Flexible Instruction Day 4

Assignment #4

Learning Standard	Framework (pa.gov) Pick learning standards from the crosswalk
Task # & Description	1303 Identify and explain the alphabet of lines.

CONTACT INFORMATION/ASSISTANCE

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I will be available by email from 7:40-12, and 12:30-3:10 to answer your questions. Please reach out if you are having difficulty completing your assignments.

INSTRUCTIONS

Complete all activities independently using your classroom knowledge. No internet is required.

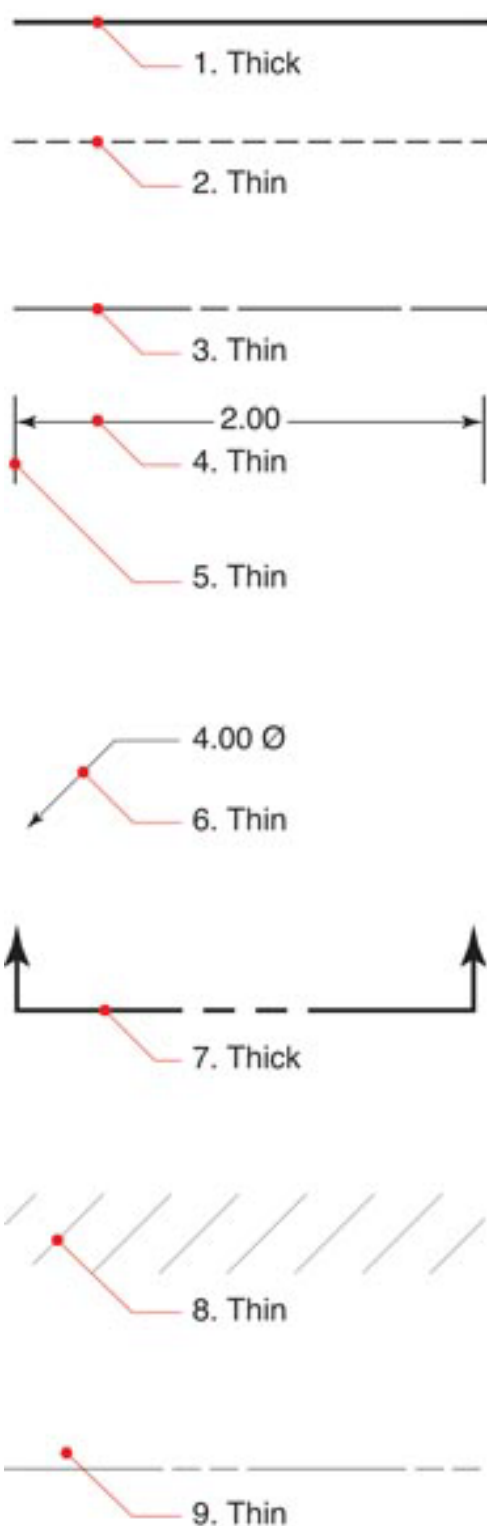
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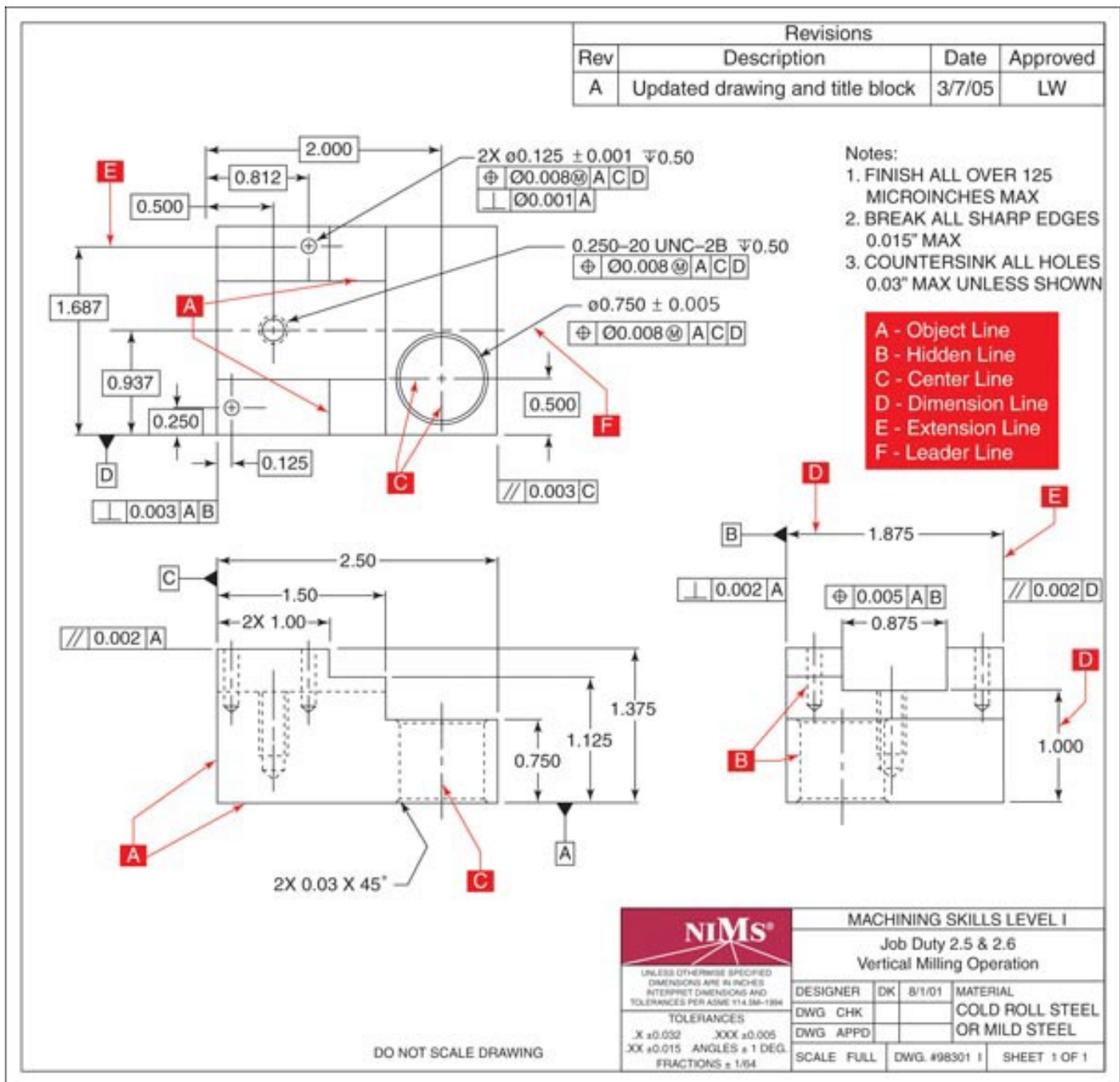
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Alphabet of Lines Reference Chart

Line Type	Appearance	Use
Object Line	Thick solid line	Shows visible edges of a part
Hidden Line	Medium dashed line	Shows edges that cannot be seen
Center Line	Long-short-long line	Shows centers of holes, circles, and arcs
Dimension Line	Thin line with arrowheads	Shows the size of a feature
Extension Line	Thin solid line	Extends from the object to a dimension
Leader Line	Thin line with arrow/point	Points to a note, hole, radius, or feature
Cutting Plane Line	Thick line with arrows	Shows where a section view is cut
Section Line	Thin angled lines	Shows material cut in a section view
Phantom Line	Long-short-short-long line	Shows alternate positions or repeated details
Break Line	Freehand or zigzag line	Shows part of a drawing has been removed



1. *Object or visible lines* are used to show part edges that are visible in a given view. They are thick and continuous.
2. *Hidden lines* show part edges that cannot be seen in a given view. They are thin and broken into small dashes.
3. *Center lines* show the center of a diameter or radius, or the center of a part. Hole locations are shown where two center lines cross. They are thin and broken into alternating long and short dashes.
4. *Dimension lines* have arrowheads at each end where they touch extension lines. A dimension is listed to show feature size. They are thin and have arrowheads at their ends.
5. *Extension lines* extend edges for dimensioning purposes. They are thin and continuous.
6. *Leader lines* are angled with an arrowhead at one end that touches a part feature. A dimension or note is placed at the other end of the leader. They are thin and continuous.
7. *Cutting plane lines* are used to make an imaginary cut through an object. The arrowheads indicate the viewing direction of the section view after the cut. They are thick and have one long and two short dashes alternately spaced.
8. *Section lines* show surfaces that have been "cut" in a section view created by a cutting plane line. They are thin and angled.
9. *Phantom lines* are used to show alternate positions of parts or outlines of adjacent parts. They are thin and have one long and two short dashes alternately spaced.



Part 1 – Match the Line Type

Match each line type with the correct use.

Line Type Letter

Object Line _____

Hidden Line _____

Center Line _____

Dimension Line _____

Line Type	Letter
Extension Line	_____
Leader Line	_____
Cutting Plane Line	_____
Section Line	_____
Phantom Line	_____
Break Line	_____

Uses

- A. Shows the size of a feature
 - B. Shows visible edges of a part
 - C. Shows edges that cannot be seen
 - D. Points to a note or feature
 - E. Shows where a section view is cut
 - F. Shows material cut in a section view
 - G. Shows centers of holes, circles, and arcs
 - H. Shows part of a drawing has been shortened or removed
 - I. Extends from the object to a dimension
 - J. Shows alternate positions or repeated details
-

Part 2 – Multiple Choice

Circle the best answer.

1. Which line shows visible edges of an object?

- A. Hidden Line
 - B. Object Line
 - C. Center Line
 - D. Section Line
-

2. Which line shows features that cannot be seen from the current view?

- A. Hidden Line
 - B. Dimension Line
 - C. Leader Line
 - D. Break Line
-

3. Which line is used to show the center of a hole?

- A. Object Line**
 - B. Center Line**
 - C. Extension Line**
 - D. Phantom Line**
-

4. Which line usually has arrowheads at both ends?

- A. Object Line**
 - B. Dimension Line**
 - C. Hidden Line**
 - D. Section Line**
-

5. Which line points to a note or special feature?

- A. Leader Line**
 - B. Hidden Line**
 - C. Cutting Plane Line**
 - D. Break Line**
-

6. Which line shows where a part is cut for a section view?

- A. Dimension Line**
 - B. Cutting Plane Line**
 - C. Center Line**
 - D. Phantom Line**
-

7. Section lines are usually used to show:

- A. Hidden features**
 - B. Material that has been cut**
 - C. Object height only**
 - D. Alternate positions**
-

8. A break line is used when:

- A. A part is too long to show full size**
- B. A hole needs a center mark**
- C. A dimension is missing**
- D. A surface is hidden**

Part 3 – True or False

Write TRUE or FALSE.

- _____ Object lines are usually thick and solid.
 - _____ Hidden lines are used for visible edges.
 - _____ Center lines are used for circles, holes, and arcs.
 - _____ Dimension lines show the size of a feature.
 - _____ Extension lines extend from the object to a dimension.
 - _____ Leader lines point to notes or features.
 - _____ Break lines can show that part of a drawing has been removed.
 - _____ All lines on a blueprint have the same meaning.
-

Part 4 – Line Appearance Match

Match the line appearance with the correct line type.

Appearance	Letter
Thick solid line	_____
Medium dashed line	_____
Long-short-long line	_____
Thin line with arrowheads	_____
Thin angled lines	_____
Zigzag or freehand line	_____

Line Types

- A. Center Line
 - B. Break Line
 - C. Object Line
 - D. Dimension Line
 - E. Hidden Line
 - F. Section Line
-

Part 5 – Blueprint Use Review

Circle the best answer.

1. Why is the alphabet of lines important?

- A. It makes drawings look decorative**
 - B. Each line has a specific meaning**
 - C. It replaces measurements**
 - D. It is only used in welding**
-

2. What could happen if a machinist misreads a hidden line?

- A. The part could be made incorrectly**
 - B. The part would automatically be correct**
 - C. The machine would not need setup**
 - D. The print would disappear**
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3. Which line would help locate the center of a drilled hole?

- A. Center Line**
 - B. Break Line**
 - C. Object Line**
 - D. Leader Line**
-

4. Which line would be used with a note such as “DRILL Ø.250”?

- A. Leader Line**
- B. Hidden Line**
- C. Phantom Line**
- D. Section Line**