

Geometry: Lines and Angles 155

Name: _____

Date: _____

Everywhere you look in manufacturing you see lines and angles.



1. To better understand the terminology use in manufacturing, write the letter of the correct term beside each definition.

- | | |
|--|-------------------------|
| _____ The point at which two lines intersect | A opposite rays |
| _____ A set of points in a straight path that extends infinitely in both directions. | B point |
| _____ Two lines that form a right angle at their point of intersection | C ray |
| _____ Position in space, often represented by a dot | D point of intersection |
| _____ A finite portion of a line that has two endpoints | E linear |
| _____ Three or more points that lie in the same line | F midpoint |
| _____ A point that bisects a line segment | G parallel lines |
| _____ Lines in the same plane that never intersect | H collinear points |
| _____ A portion of a line that extends from one endpoint infinitely in one direction | I perpendicular lines |
| _____ A flat surface that extends infinitely in all directions | J line segment |
| _____ Two rays that share an endpoint and extend in opposite directions of a line | K line |

_____ Something that relates to or resembles a line

L plane

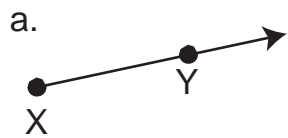
_____ Three or more points that lie in the same plane

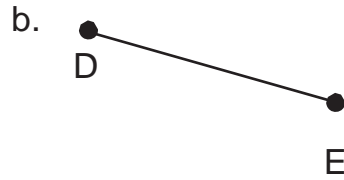
M coplanar points

_____ If three points are coplanar, then the line containing two of the points are in the same plane

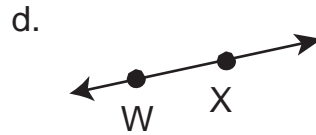
N flat-plane rule

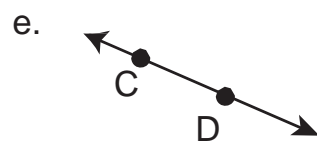
2. It is impossible to manufacture a part from a print diagram without understanding what that diagram is describing. Identify each point as a point, a line, a segment, or a ray.

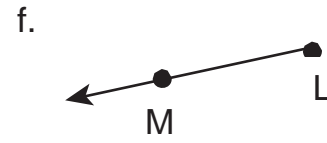


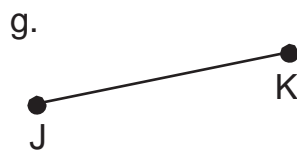




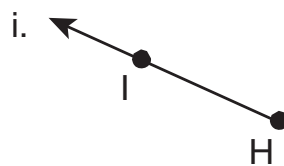






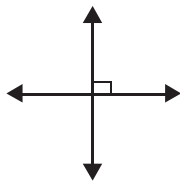




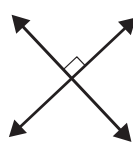


3. Identify each figure as parallel or perpendicular.

a.



b.



c.



4. Draw and label of each of the following:

a. \overleftrightarrow{AB}

b. points C and D

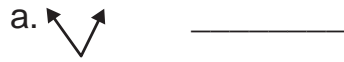
c. \overline{RS}

d. points X, Y, Z

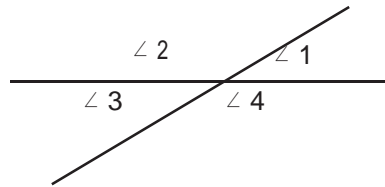
e. \overrightarrow{DE}

f. \overleftrightarrow{JK}

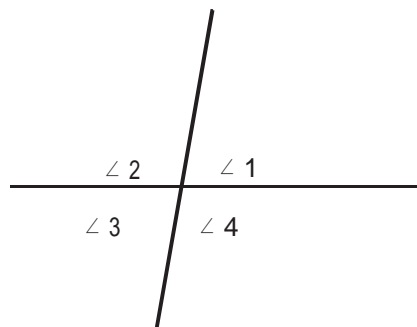
5. Much manufacturing requires the use of angles. Some of the materials such as angle iron, channels, and beams must be installed at specific angles to ensure stability and strength. Classify each angle as acute, obtuse, right, or straight. (You can verify your answer with a protractor)



6. Find the missing vertical angle.



- $\angle 1 = 23.87^\circ$
- $\angle 2 = 156.13^\circ$
- $\angle 3 = \underline{\hspace{2cm}}$
- $\angle 4 = \underline{\hspace{2cm}}$



- $\angle 1 = 79.84^\circ$
- $\angle 2 = \underline{\hspace{2cm}}$
- $\angle 3 = \underline{\hspace{2cm}}$
- $\angle 4 = 100.16^\circ$

Image sources:

Picture 1—LeDuc & Dexter Inc. (2002). Dehlinger Windery-The Return of a Favorite Son. Retrieved from <http://www.leducanddexterplumbing.com/news-sept2002.html>

Picture 2—AASHTO. (n.d.). John Greenleaf Whittier Bridge. Retrieved from bridges.transportation.org or <http://bridges.transportation.org/Pages/Massachusetts.aspx>

Picture 3—Aston Service Dorset (n.d.). Cup Fitting Manifolds. Retrieved from [astonservicedorset.com](http://www.astonservicedorset.com) or <http://www.astonservicedorset.com/>

Line and angles were developed by S. Grudzinski



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