

## Ch 2- Basic Concepts and Proofs

### Agenda:

#### 2.1 - Perpendicularity

##### Objectives:

- make connections with Euclidean and Coordinate Geometry
- understand the concept of perpendicularity

- 1) Take out Ch 2 Glossary to be checked
- 2) Explanation of Coordinate Geometry
- 3) Connections between "perpendicular" definitions
- 4) Practice Problems

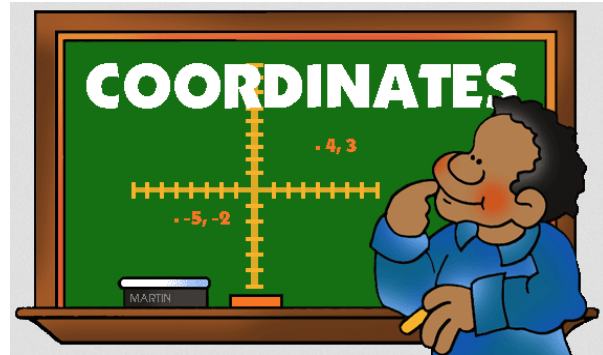
#### HW: Definitions and Theorems for 2.2

- complementary angles
- complement
- supplementary angles
- supplement

p. 63 - 65, # 1b, 2b, 3b, 5, 10, 11, 14

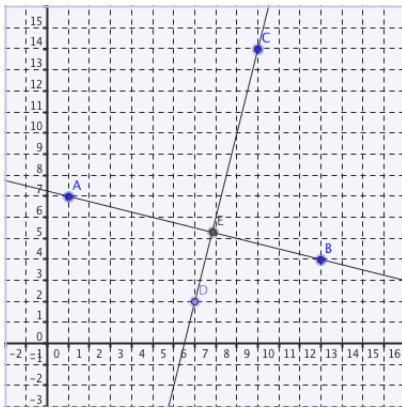
Quiz Thursday/Friday

# Geometry Ch 2. Basic Concepts and Proofs

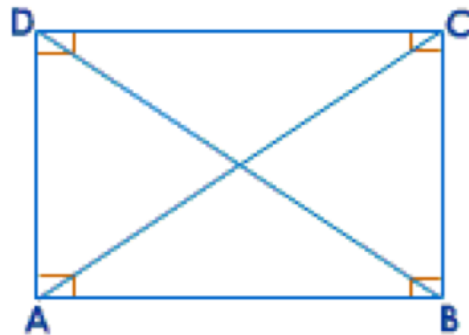


Coordinate geometry: The study of points as ordered pairs of numbers

Coordinate Geometry



Euclidean geometry



VS.

*\*Geogebra example\**

Think, Pair, Share...

You now have 2 definitions for **perpendicular**.

Think about the two different definitions, and answer the questions below.

Then...discuss and compare your response's with a partner.

How do we describe it for coordinate geometry?

How do we describe it for Euclidean geometry?

## Ch 2.1: Perpendicularity

**Definition:** Lines, rays, or segments that intersect at right angles are **perpendicular**.

**Notation:**  $\perp$

Circle all **correct** chain(s) of reasoning:

a) Perpendicularity  $\Rightarrow 90^\circ$

b) Perpendicularity  $\Rightarrow$  Right angles  $\Rightarrow 90^\circ$

c)  $90^\circ \Rightarrow$  Right angles  $\Rightarrow$  Perpendicularity

d)  $90^\circ \Rightarrow$  Perpendicularity

\*This is very important for writing proofs!

Create a diagram for each of the following:

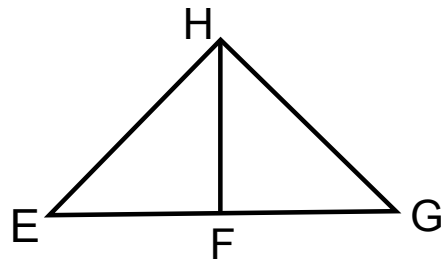
a) show  $a \perp b$

b) show segments DE and EF  $\perp$

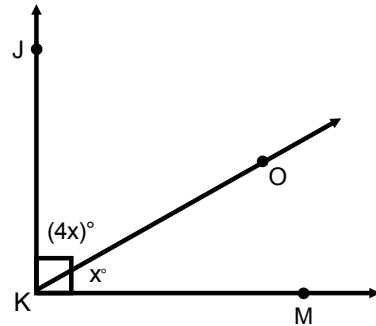
c) show segment JM and ray GH  $\perp$

## Practice Problems

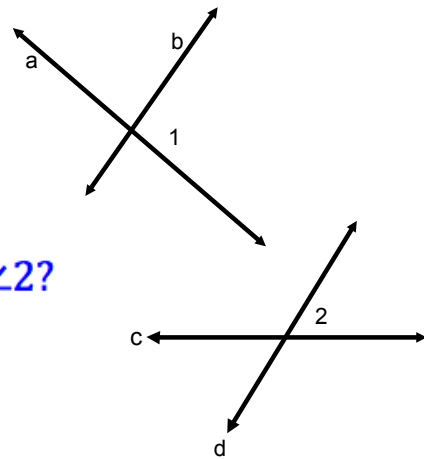
1) Given  $\overline{EH} \perp \overline{HG}$ , name all the angles you can *prove* to be right angles.



2) Given  $\overline{KJ} \perp \overline{KM}$ ,  
 And  $\angle JKO$  is four times as large as  $\angle MKO$   
 Find:  $m\angle JKO$



3) Given  $a \perp b$   
 And  $c \not\perp d$  ( $c$  is not  $\perp d$ )  
 What can you conclude about  $\angle 1$  and  $\angle 2$ ?



4) Given  $\overline{EC} \parallel$  to the x-axis  
 And  $\overline{RT} \parallel$  to the x-axis

Find the area of rectangle RECT.

