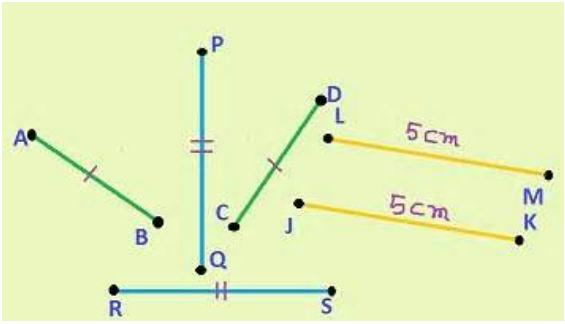
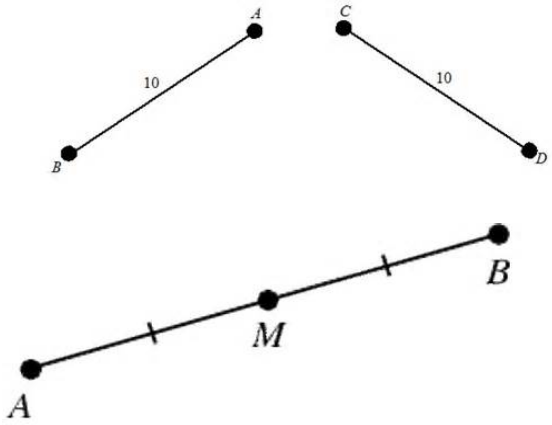
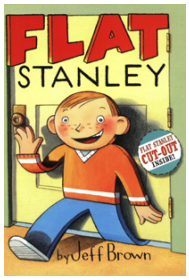
1-2 Use Segments and Congruence

Goals: Use segment postulates to identify congruent segments.





Dimensions -



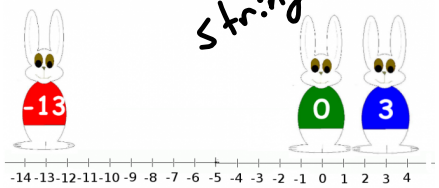
flat surface
x-y plane
2-D

2-D

3-D

line
hair
string
1-D

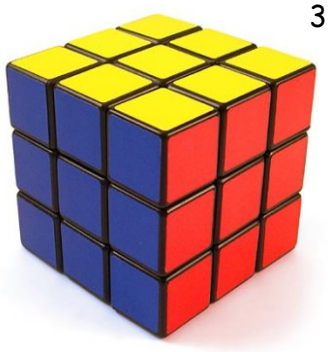
1-D



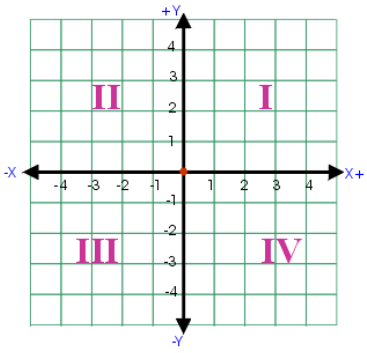
1-D

2-D

3-D



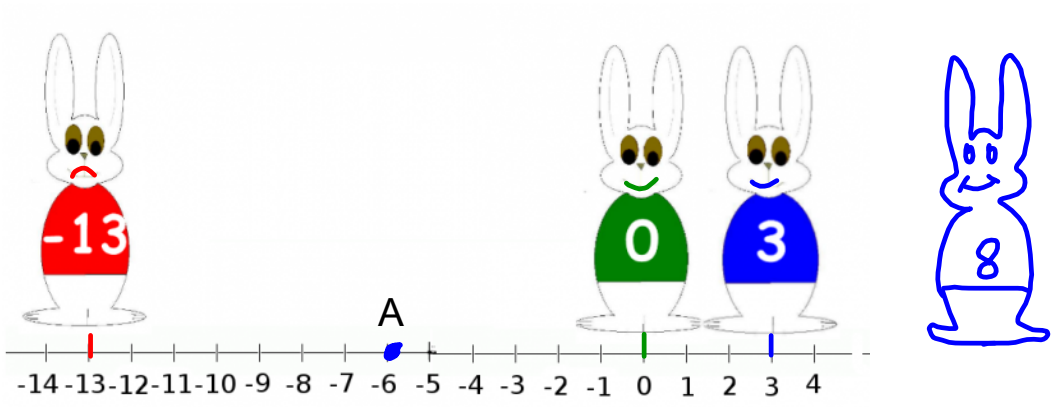
3-D



Postulate (axiom) - a rule that is accepted without proof

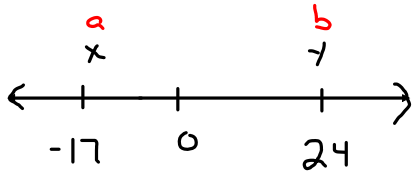
Theorem - a rule that can be proven

Coordinate - the real number that corresponds to a point on a line



the coordinate of A is -6

Distance - the absolute value of the difference of two coordinates.



XY "distance XY" XY = |24 - -17| = 41

$|x-y|$ or $|y-x|$ * big - small

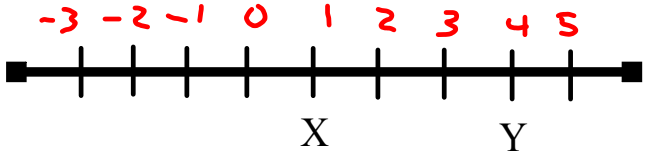
$|-17-24|$ $|24--17|$ distance is always (+)

$|-41|$ $|24+17|$

41 $|41|$

41

Betweenness - a number is between two others if it is > one # and < the other #



3 is between 1 and 4

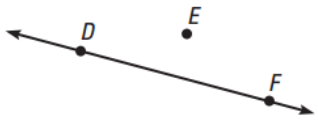
3 > 1 3 < 4

Pt x is not considered to be between x and y

1 is not > 1

* when 3 points are collinear, you can say that one point is between the other two

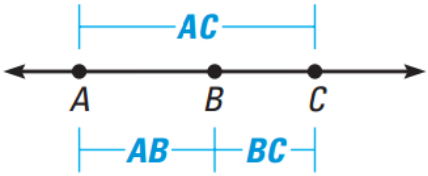
Point *B* is between points *A* and *C*.

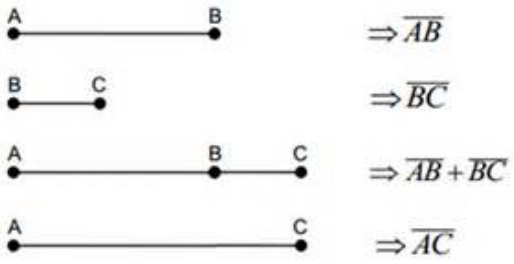


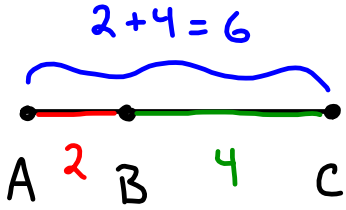
Point *E* is not between points *D* and *F*.

Segment Addition Postulate

- if B is between A and C, then AB + BC = AC
- if AB + BC = AC, then B is between A and C







AB = 2

BC = 4

AC = 2+4 = 6

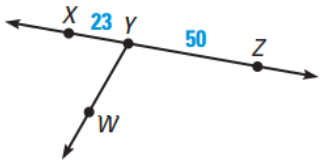
MAPS The cities shown on the map lie approximately in a straight line. Use the given distances to find the distance from Lubbock, Texas, to St. Louis, Missouri.

$LT + TS = LS$

$380 + 360 = 740$ miles

In Exercises 3 and 4, use the diagram shown.

3. Use the Segment Addition Postulate to find XZ.
4. In the diagram, $WY = 30$. Can you use the Segment Addition Postulate to find the distance between points W and Z? *Explain* your reasoning.

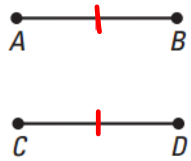


3 $XY + YZ = XZ$

$23 + 50 = 73$

4 No - Y is not between W and Z

Congruent Segments - line segments with the same length



Lengths are equal.

$AB = CD$

"is equal to"

Segments are congruent.

$\overline{AB} \cong \overline{CD}$

"is congruent to"

The symbol ≅ means "is congruent to."

HW: Pg 12 #'s 1, 2, 6-19, 21-30, 33