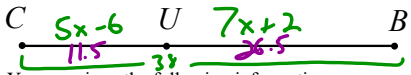
1.5 - Angles (Drawing, Labeling, Measuring, Classifying)

Mental Floss: Mon Sept 27th



You are given the following information:

- $CU = 5x-6, UB = 7x+2,$ and $CB = 38$

Find the length of CU and UB.

11.5 26.5

$5x-6+7x+2=38$ ✓

$12x-4=38$ ✓

$x=3.5$

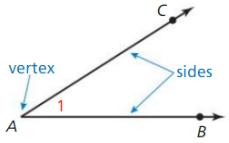
1.5 - Angles

Lesson Objectives

- Label Angles
- Measure and classify angles
- Identify congruent angles
- Use the Angle Addition Postulate to find angle measures
- Bisect Angles

Angles

An ***angle*** is a set of points consisting of two different rays that have the same endpoint, called the ***vertex***. The rays are the ***sides*** of the angle.

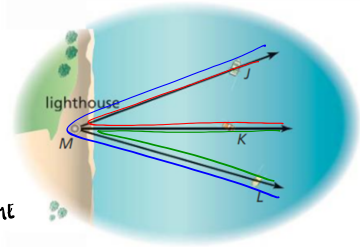


Naming Angles

1. $\angle CAB$) In order, middle letter always the vertex
2. $\angle BAC$)
3. $\angle A$) Single letter, always the vertex
4. $\angle 1$) Not always an option, only use if it is already in the diagram

EXAMPLE 1 Naming Angles

A lighthouse keeper measures the angles formed by the lighthouse at point *M* and three boats. Name all the angles in the diagram.



$\angle JMK \leftrightarrow \angle KMJ$

$\angle KML \leftrightarrow \angle LMK$

$\angle JML \leftrightarrow \angle LMJ$

SAME ∠, DIFF NAME

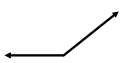
~~CAK~~ NO!

Classifying Angles

Acute: $0^\circ < Acute < 90^\circ$

Right: 90°

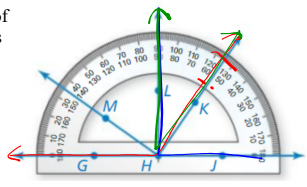
Obtuse: $90^\circ < Obtuse < 180^\circ$



Straight: 180°

EXAMPLE 2 Measuring and Classifying Angles

Use the protractor to find the measure of each angle. Then, classify each angle as acute, right, obtuse, or straight.



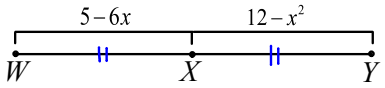
a. $\angle GHK$ b. $\angle JHL$ c. $\angle LHK$

125° 90° 35°

OBTUSE RIGHT ACUTE

1.5 - Angles (Drawing, Labeling, Measuring, Classifying)

Mental Floss: Tuesday Sept 28th



X is the midpoint of WY. Find *all possible* values of WY.

$5-6x = 12-x^2$

$x^2-6x-7=0$

$(x-7)(x+1)=0$

$x-7=0 \quad x+1=0$

$x=7, -1$

$x=7$

$5-6(7)=-37$

$12-(7)^2=-37$

CANNOT BE NEGATIVE

$x=-1$

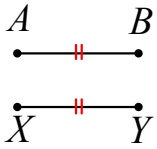
$5-6(-1)=11$

$12-(-1)^2=11$

$WY=22$

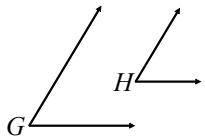
Congruent Segments = Segments with the same length or measure.

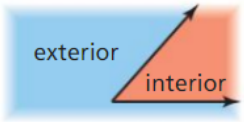
1. $AB = XY$
2. $\overline{AB} \cong \overline{XY}$
3. Tick marks



Congruent Angles = Angles with the same measure.

1. $m\angle G = m\angle H$
2. $\angle G \cong \angle H$
3. Tick marks



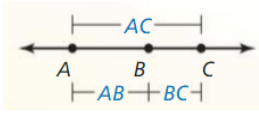


Interior of angle = The region containing all the points between the sides of the angle.

Exterior of angle = The region containing all the points outside the angle.

Segment Addition Postulate =

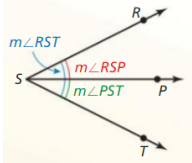
- If B is between A and C, then AB + BC = AC.
- If AB + BC = AC, then B is between A and C.



Angle Addition Postulate =

- If P is on the interior of $\angle RST$, then the measure of $\angle RST$ is equal to the sum of the measures of $\angle PST$ and $\angle RSP$.

$$m\angle RST = m\angle RSP + m\angle PST$$



EXAMPLE 4 Finding Angle Measures

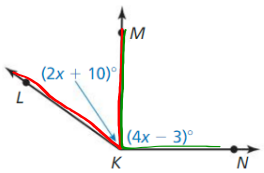
Given that $m\angle LKN = 145°$, find $m\angle LKM$ and $m\angle MKN$.

$2x+10+4x-3=145$

$6x+7=145$

$6x=138$

$x=23$



$\angle LKM = 2(23)+10 = 56°$

$\angle MKN = 4(23)-7 = 89°$

145 ✓

1.5 Multi-day assignment

Suggested HW pacing (All of 1.5 due Fri 10/1)

1.5 p.43

- Mon 9/27 - #6,7,9-14
- Tues 9/28 - #21,23,25,28,30
- Wed 9/29 - #34,38,48,49,54
- Thu 9/30 - Protractor activity
- Fri 10/1 - 10.5 Due | 1.5 Quiz