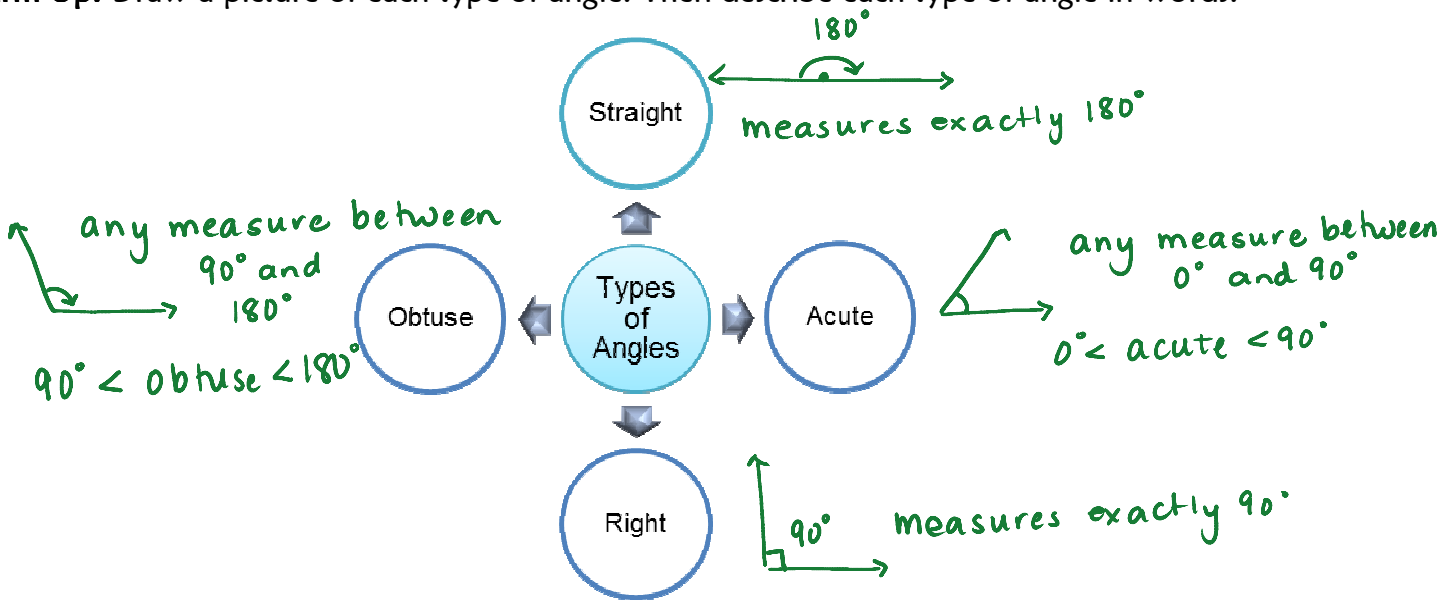
1.3: Measuring Angles

Learning Target: Name and Classify Angles.

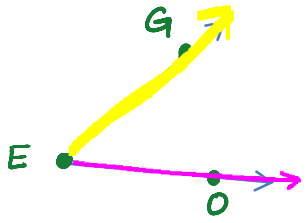
Warm Up: Draw a picture of each type of angle. Then describe each type of angle in words.



An **angle** is a figure formed by two rays with a common endpoint called the vertex.

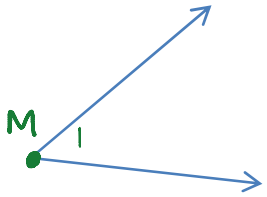
- ❒ What unit are angles usually measured in? degrees
- ❒ How do you name an angle?

Example 1:



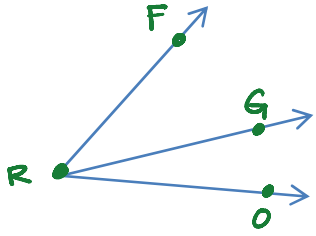
∠GED, ∠OEG, ∠E

Example 2:



∠M or ∠1

Example 3:



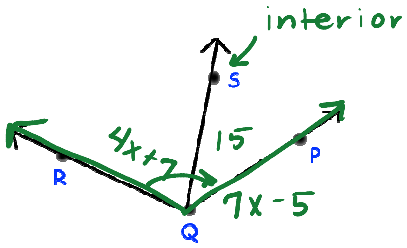
∠FRG, ∠GRO, ∠FRO
∠GRF, ∠ORG, ∠ORF

Angle Addition Postulate: If S is in the **interior of** ∠PQR, then ∠RQS + ∠SQP = ∠RQP
(similar to between)

Example: S is in the interior of ∠PQR.

$m\angle RQS = (4x+7)^\circ$, $m\angle RQP = (7x-5)^\circ$,

and $m\angle SQP = 15^\circ$. Find $m\angle RQS$. = 43°



part + part = whole

$4x+7+15 = 7x-5$

$4x+22 = 7x-5$

$-3x = -27$

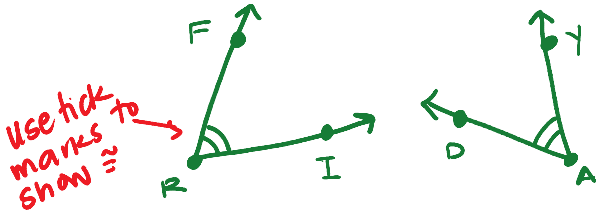
$x = 9$

$m\angle RQS = 4(9)+7$

$= 36+7$

$= 43^\circ$

Congruent Angles are angles that have the same measure.

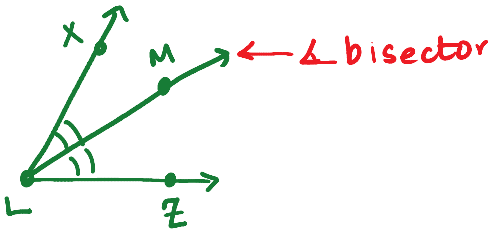


Use tick marks to show ≅

$\angle FRI \cong \angle DAY$

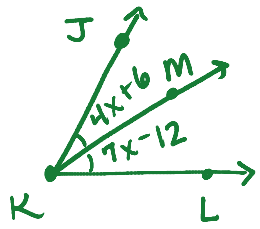
Angle Bisector: A ray that divides an angle into 2 congruent angles.

Example: If $\overrightarrow{LM}$ bisects $\angle XLZ$, then $\angle XLM \cong \angle ZLM$



Example: $\overrightarrow{KM}$ bisects $\angle JKL$.
$m\angle JKM = 4x + 6$ and $m\angle MKL = 7x - 12$.
Find $m\angle JKM$. = 30°

measure of ∠JKM is ...



$4x+6 = 7x-12$

$-3x = -18$

$x = 6$

$m\angle JKM = 4(6) + 6$

$= 30°$

Think-Pair-Share:

What is the difference between "interior" and "angle bisector"?

- interior is anywhere between the 2 rays
- ∠ bisector is a ray exactly between the 2 rays

What is the difference between "between" and "midpoint"?

- between is anywhere inside the 2 endpts of a segment
- midpt. is exactly in the middle of 2 endpts.

How are "interior" and "between" similar? How are they different?

diff.
- interior refers to a point inside an angle
- between is a point that lies between 2 endpts

sim.
- interior and between are both vague → pt. can be anywhere

How are "angle bisector" and "midpoint" similar? How are they different?

diff
- angle bisector is a ray that ÷ an angle
- midpt is a pt. that ÷ a segment

sim.
- ∠ bisector and midpt are specific – both ÷ figures into 2 = parts.