Bell Ringer #22: (Try these from memory)

Triangles can be classified by angles or sides.

There are 7 total ways to classify triangles.

The 3 ways to classify a triangle by sides are scalene, equilateral, and isosceles.

The 4 ways to classify a triangle by angles are acute, equiangular obtuse, and right.

Homework Check:

4-2
Skills Practice #1-12

4-2
Practice #1-7, 10

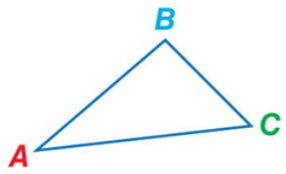
Unit 4: Congruent Triangles

LT14: 4-1 Classifying Triangles
LT15: 4-2 Triangle Angle-Sum
LT16: 4-6 Isosceles & Equilateral
LT17: 4-3 Congruent Triangles
LT18: 4-4, 4-5 Triangle Congruence
LT19: 4-4, 4-5 Triangle Proofs

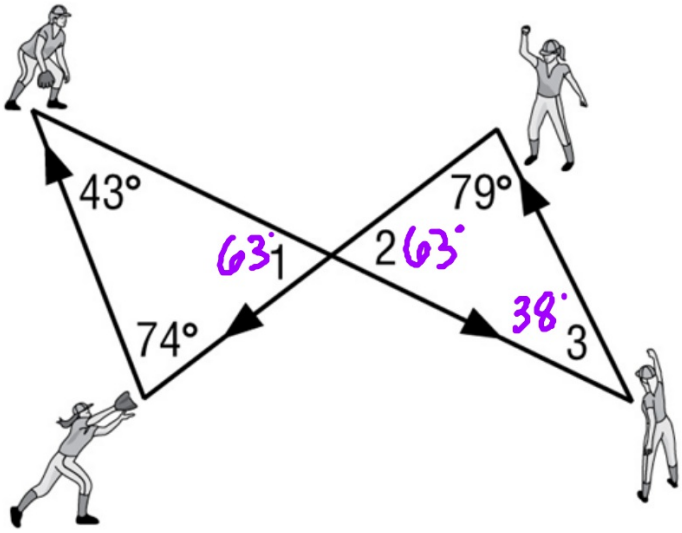
Theorem 4.1 Triangle Angle-Sum Theorem

Words The sum of the measures of the angles of a triangle is 180.

Example $m\angle A + m\angle B + m\angle C = 180$



SOFTBALL The diagram shows the path of the softball in a drill developed by four players. Find the measure of each numbered angle.



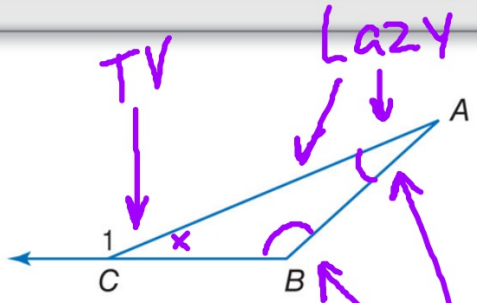
$180 - 43 - 74 = 63°$

$180 - 63 - 79 = 38°$

Theorem 4.2 Exterior Angle Theorem

The measure of an exterior angle of a triangle is equal to the sum of the measures of the two remote interior angles.

Example $m\angle A + m\angle B = m\angle 1$



$\angle 1 + \angle x = 180$

$\angle A + \angle B + \angle x = 180$

$\angle A + \angle B = \angle 1$

remote interior angles

GARDENING Find the measure of $\angle FLW$ in the fenced flower garden shown.

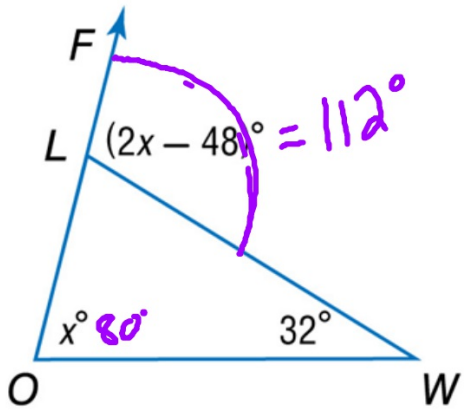
$x + 32 = 2x - 48$

$-x \qquad -x$

$32 = x - 48$

$+48 \qquad +48$

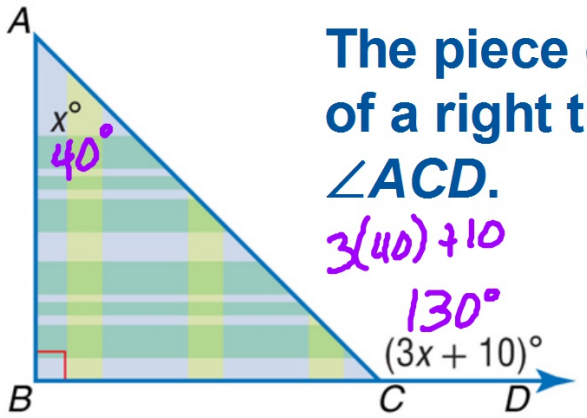
$x = 80$



$2(80) - 48$

$160 - 48$

$= 112$



The piece of quilt fabric is in the shape of a right triangle. Find the measure of $\angle ACD$.

$3(40)+10$

$130°$

$x + 90 = 3x + 10$

$-x \qquad -x$

$90 = 2x + 10$

$-10 \qquad -10$

$80 = 2x$

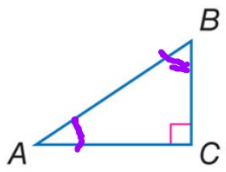
$x = 40$

Corollaries Triangle Angle-Sum Corollaries

4.1 The acute angles of a right triangle are complementary.

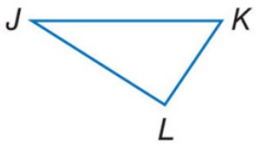
Abbreviation: *Acute ∡s of a rt. △ are comp.*

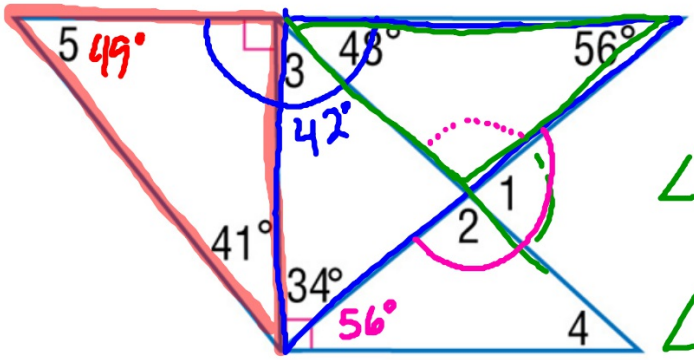
Example: If $\angle C$ is a right angle, then $\angle A$ and $\angle B$ are complementary.



4.2 There can be at most one right or obtuse angle in a triangle.

Example: If $\angle L$ is a right or an obtuse angle, then $\angle J$ and $\angle K$ must be acute angles.





Find the measure of each numbered angle.

$\angle 1 = 48 + 56 = 104°$

$\angle 1 = 180 - 42 - 34 = 104°$

$\angle 5 = 180 - 41 - 90 = 49°$

$\angle 2 = 180 - 104 = 76°$

$\angle 3 = 180 - 90 - 48 = 42°$

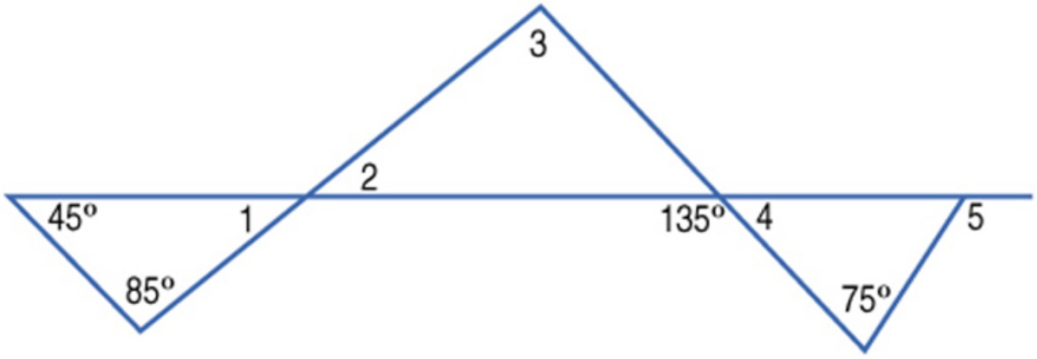
$\angle 2 = 180 - 48 - 56 = 76°$

$\angle 3 = 90 - 48 = 42°$

$\angle 4 = 180 - 76° - 56° = 48°$

$\angle 3 = 180 - 34 - 56 - 48 = 42°$

Find the measure of all numbered angles.



Homework:

4-2
Skills Practice #1-15

4-2
Practice #1-13