Warm Up

Classify each angle as acute, right, obtuse, or straight.

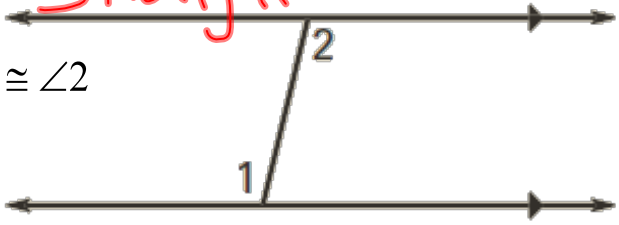
1. 90^o Right

2. 72^o Acute

3. 116^o Obtuse

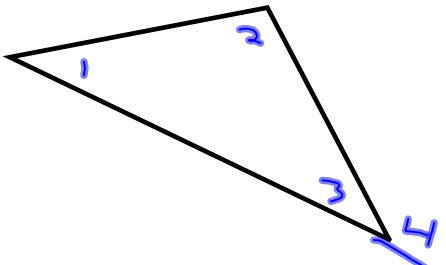
4. 180^o Straight

5. How do you know that $\angle 1 \cong \angle 2$



Alt. Int Angles Thm

4-1 Triangle Sum Properties

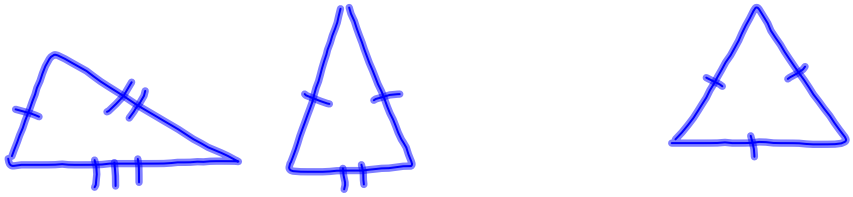


Triangle sum theorem - $m\angle 1 + m\angle 2 + m\angle 3 = 180^\circ$

Exterior angle theorem - $m\angle 1 + m\angle 2 = m\angle 4$

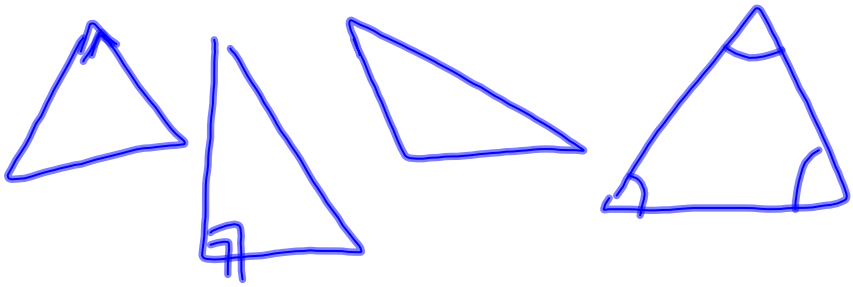
Classifying Triangles by Sides

Scalene Isosceles Equilateral



Classifying Triangles by Angles

Acute Right Obtuse Equiangular

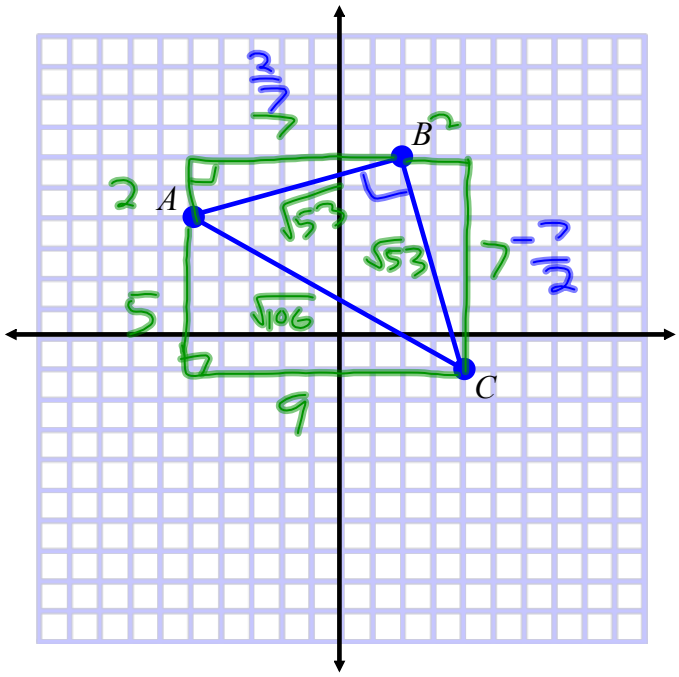


Ex 1 Classify triangle ABC by its sides and angles.

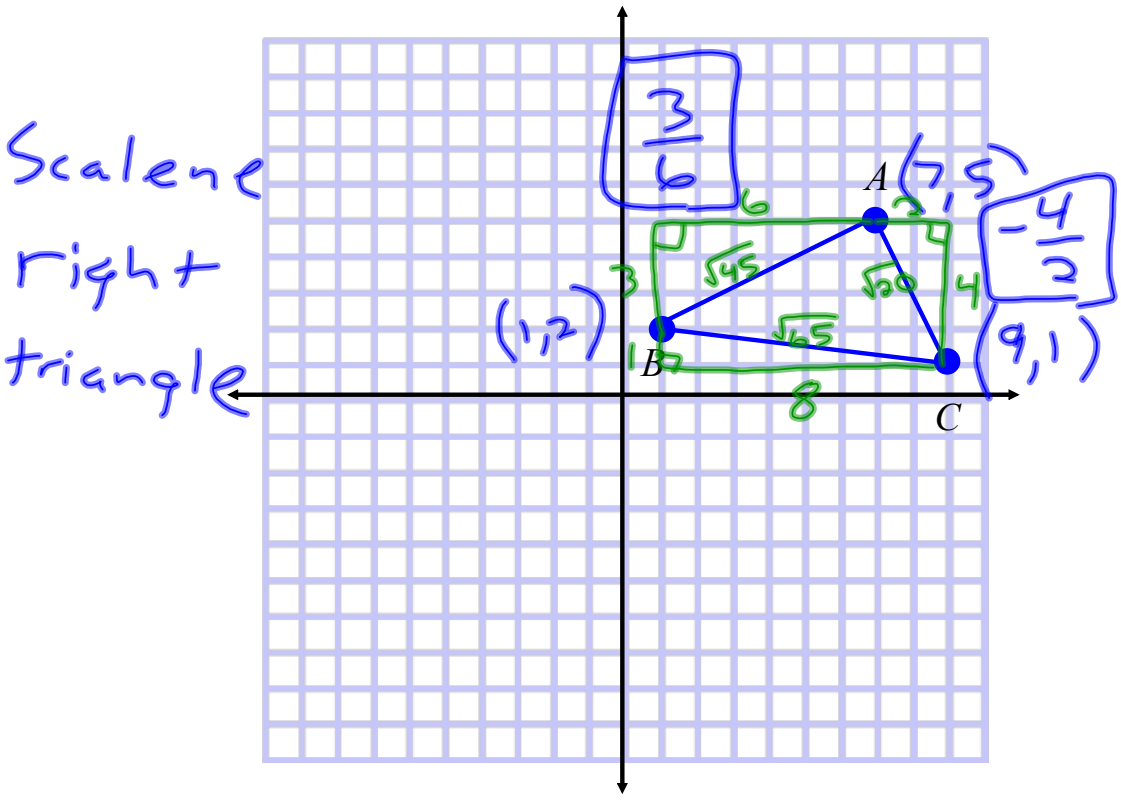
isosceles

right

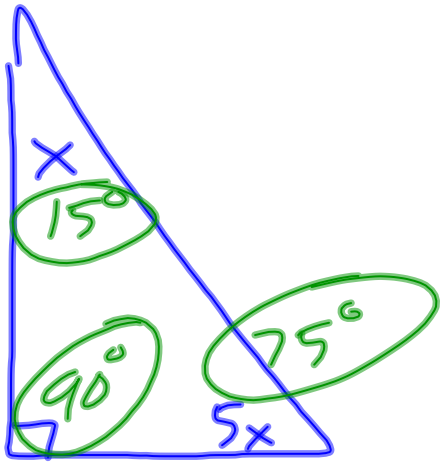
triangle



Ex 2 Classify triangle ABC by its sides and angles.



Ex. 3 In a right triangle, the measure of one acute angle is five times the measure of the other. Find the measure of each angle.



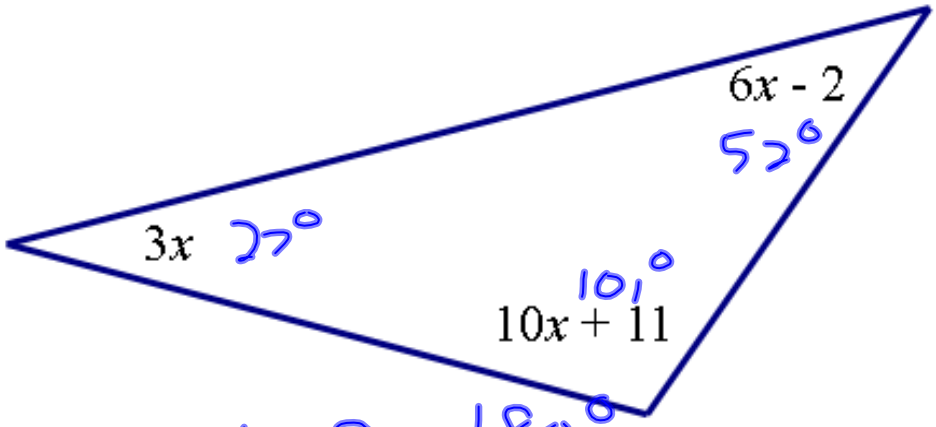
$x + 5x + 90 = 180$

$1x + 5x = 90$

$6x = 90$

$x = 15$

Ex. 4 Find the value of x. Then classify the triangle by its angles.



$3x+10x+11+6x-2=180$

$19x+9=180$

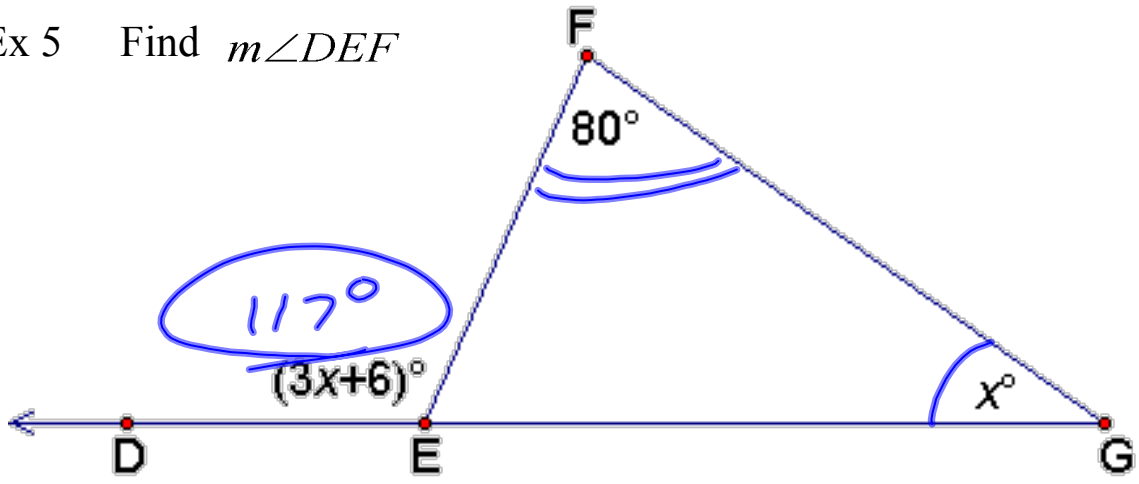
$19x=171$

$\frac{19x}{19}=\frac{171}{19}$

$x=9$

obtuse

Ex 5 Find $m\angle DEF$



$x+80=3x+6$

$-x \quad -x$

$80=2x+6$

$74=2x$

$37=x$

Ex 6 Find the measure of the exterior angle.