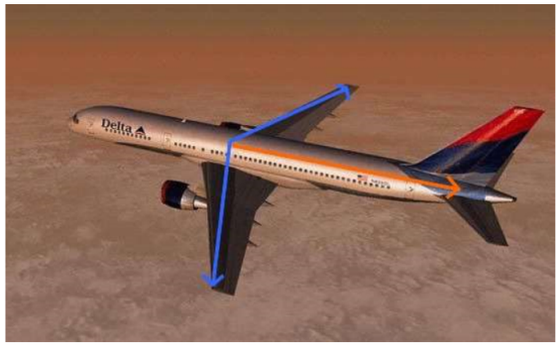
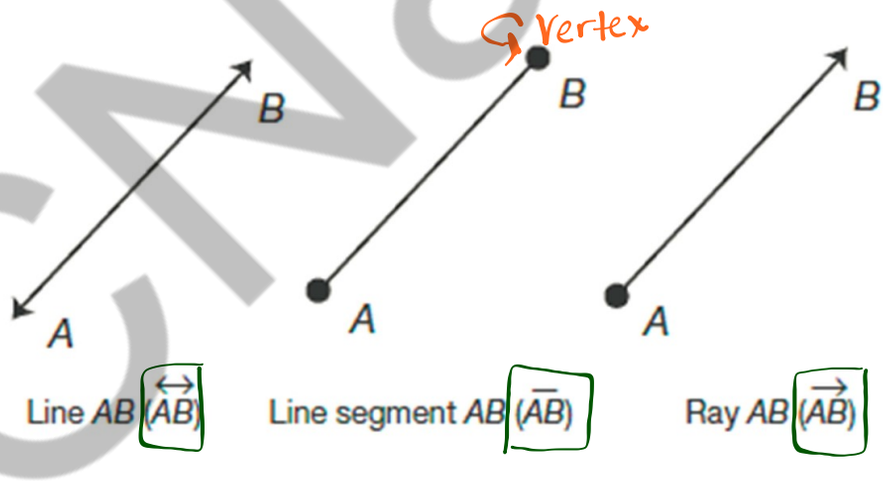
Chapter 7: Triangles

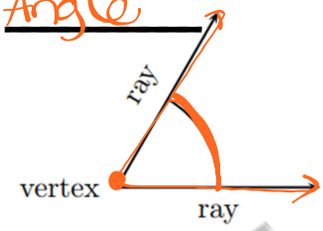
7.1 Angles and triangles pg. 188-193





A vertex and two rays form an Angle

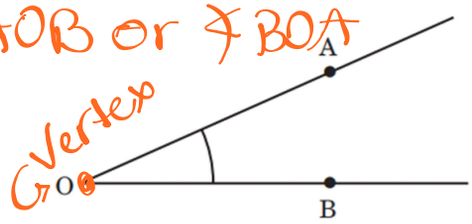
Symbol ∠ or <



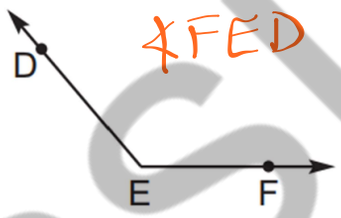
Naming an Angle

- **The letter that represents the vertex is written in the middle.**

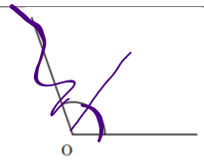
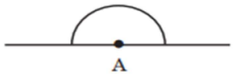
∠AOB or ∠BOA



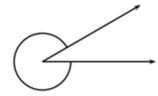
∠DEF or ∠FED



Types of Angles

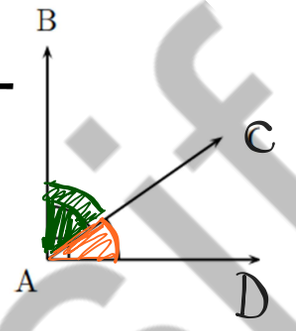
Acute	**Less than 90°**	
Right	**= 90°**	
Obtuse	**Between 90° and 180°**	
Straight	**=180°**	

Reflex **Greater than 180°**

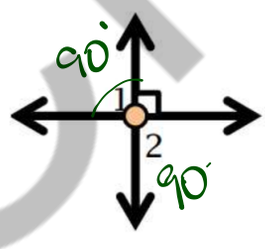


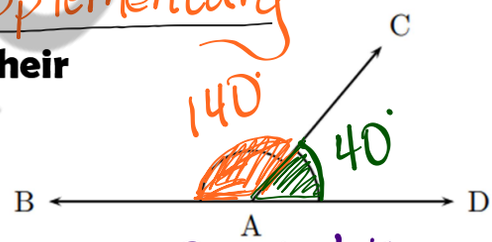
Two angles are complementary **when the sum of their angles is** 90°

$\angle BAC + \angle CAD = 90°$



Two angles are supplementary **when the sum of their angles is** 180°.

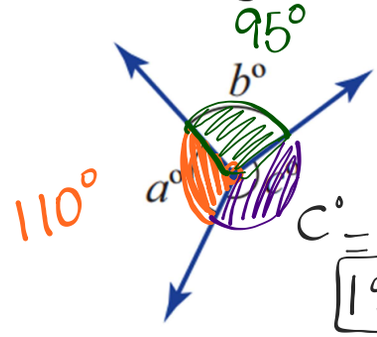




Straight angle = 180°

$\angle BAC + \angle DAC = 180°$

Sum of Angles around a vertex is 360°.

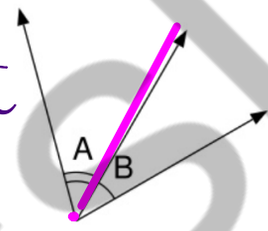


$a+b+c = 360$

155°

Adjacent angles: 2 angles side by side that share a vertex and common side.

Angles A + B are adjacent

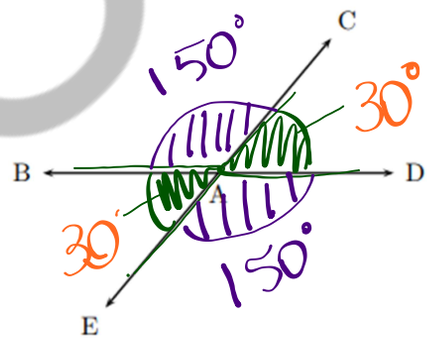


Congruent: 2 angles with the same measure

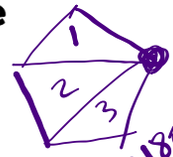
Symbol ≅ ≅ ↓ equal

Vertically Opposite Angles: are congruent

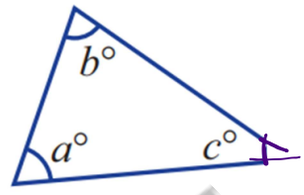
V.O.A.



The sum of the interior angles of a triangle is: 180°.

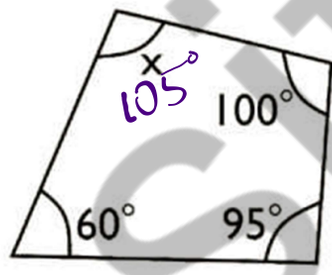


3 × 180 = 540



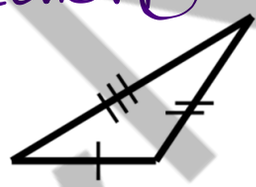
The sum of the interior angles of a quadrilateral is 360.

$a + b + c = 18$

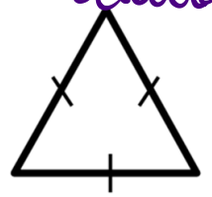


Types of Triangles

scalene

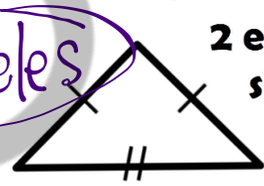


equilateral

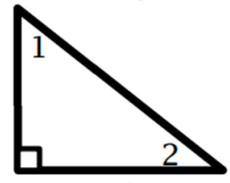


3 equal sides and angles

isosceles
isoco
isc
tscol



2 equal sides and isoceles **angles**

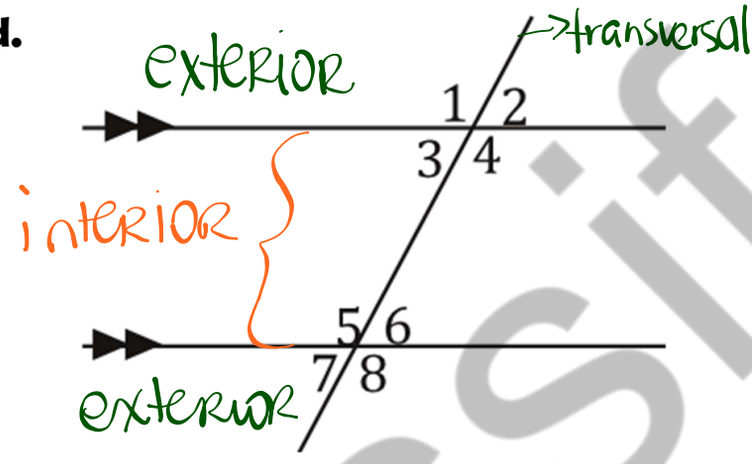


The sum of angles and 2 is 90.

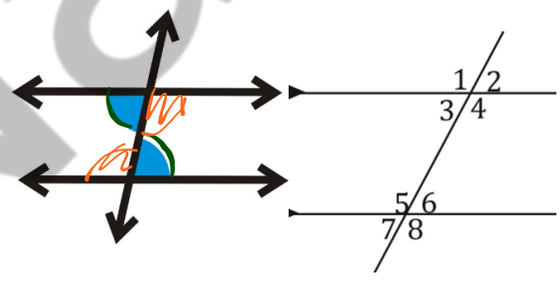
Right angled

Parallel lines theorem

When a transversal cuts across two parallel lines, various combinations of congruent angles are created.



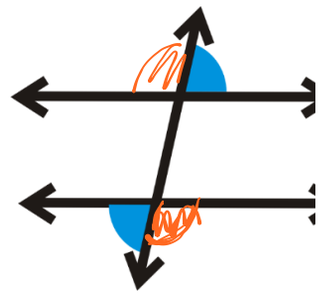
The alternate interior angles are congruent.



$\angle 3 \cong \angle 6$

$\angle 4 \cong \angle 5$

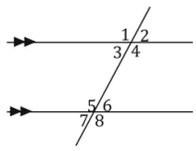
The alternate exterior angles are congruent.



$\angle 2 \cong \angle 7$

$\angle 1 \cong \angle 8$

The corresponding angles are congruent.



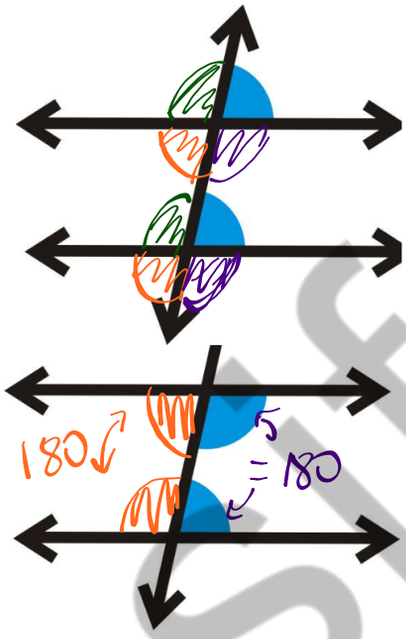
$\angle 1 \cong \angle 5$
$\angle 2 \cong \angle 6$
$\angle 3 \cong \angle 7$
$\angle 4 \cong \angle 8$

same side

The interior angles are supplementary.

$\angle 4 + \angle 6 = 180^\circ$

$\angle 3 + \angle 5 = 180^\circ$



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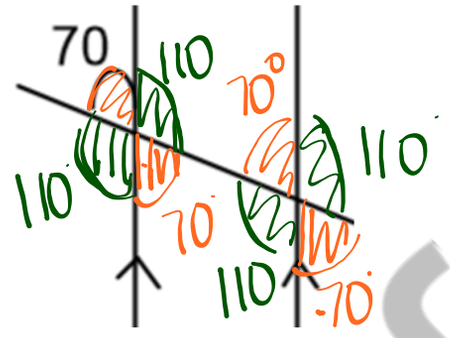
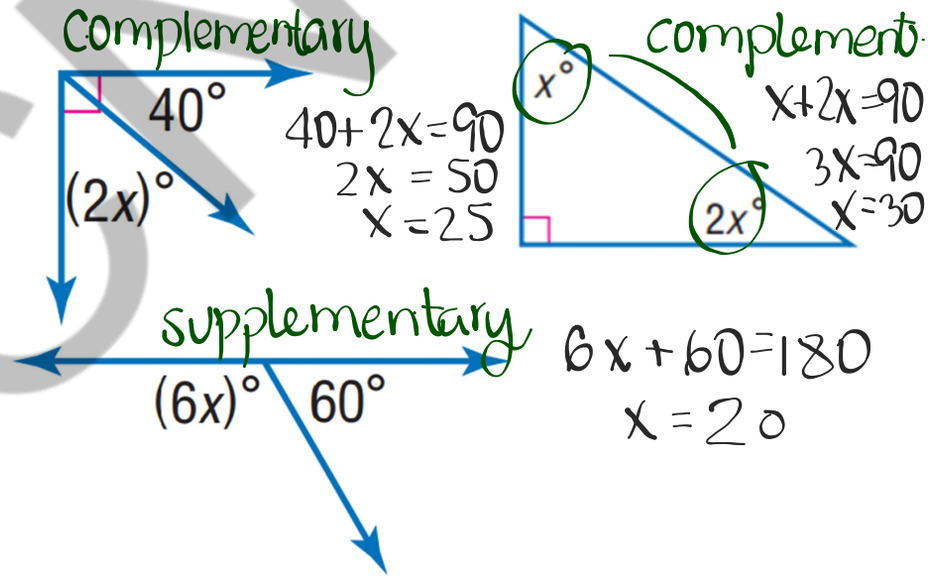
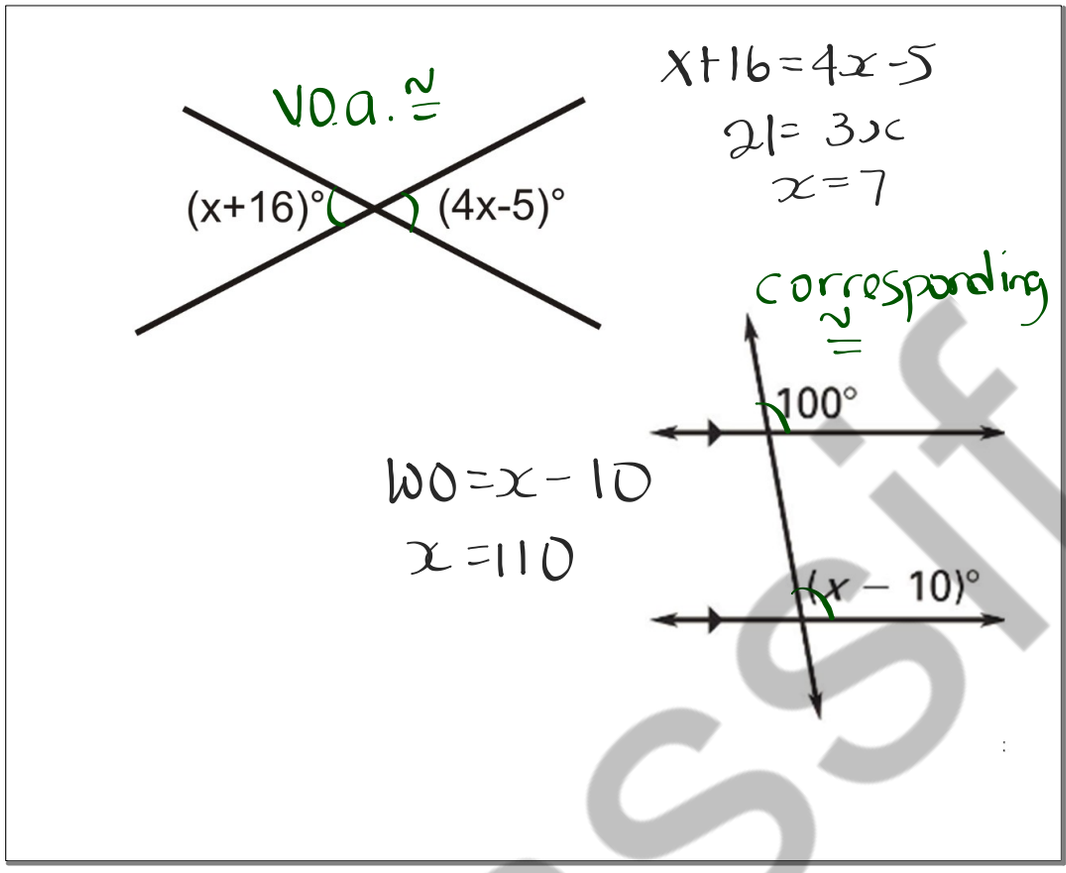
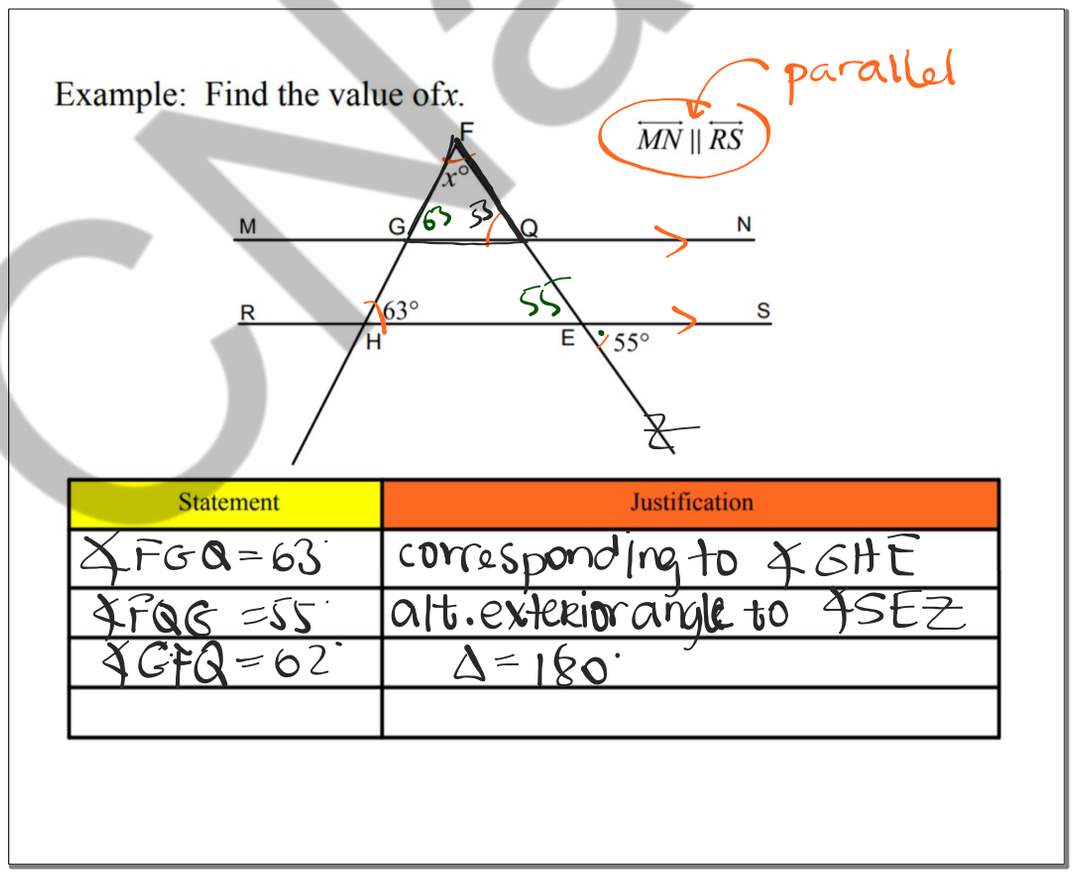
Find all angles



Find the value of x.



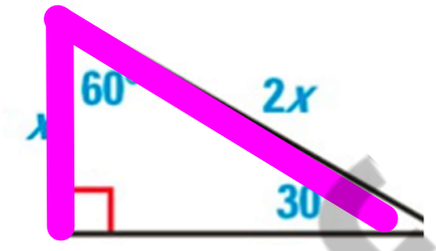




Statement	Justification
∠FGQ = 63°	corresponding to ∠GHE
∠FQG = 55°	alt. exterior angle to ∠SEZ
∠GFQ = 62°	Δ = 180°

Magic triangle (30° – 60° – 90° triangle)

The side opposite 30° is half the hypotenuse.



Find the length of the hypotenuse.

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Mar 14-10:58 AM