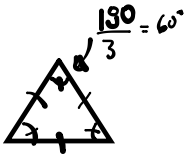
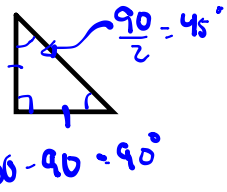
Geometry Review

Types of triangles:

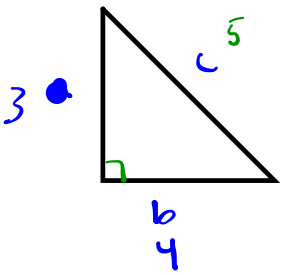
	Isosceles	Equilateral	Scalene	Right
				
Characteristics:	2 congruent - sides - angles	3 congruent - sides - angles	3 diff - sides - angles	1 angle = 90°



The sum of angles in any triangle is = 180°

Pythagoras Thereom

Find hypotenuse:



$a^2 + b^2 = c^2$

$3^2 + 4^2 = c^2$

$9 + 16 = c^2$

$\sqrt{25} = \sqrt{c^2}$

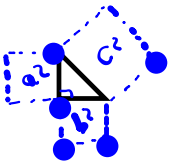
$5 = c$

3, 4, 5

6, 8, 10

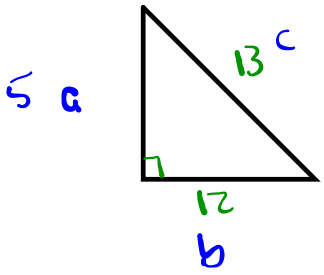
9, 12, 15

30, 40, 50



Pythagoras Thereom (cont'd)

Find missing leg:



$a^2+b^2=c^2$

$c^2-a^2=b^2$

$c^2-b^2=a^2$

$13^2-12^2=a^2$

$169-144=a^2$

$\sqrt{25}=\sqrt{a^2}$

$5=a$

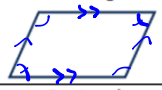
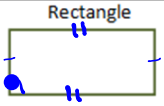
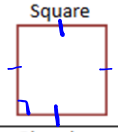
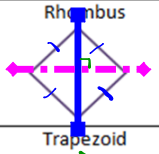
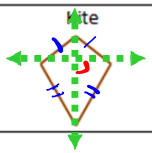
n = # sides

$(n-2)180$

Quadrilaterals

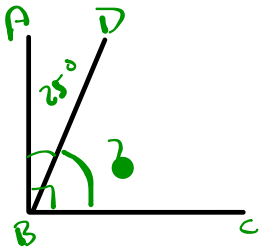
Σ angles = 360°

4 sides

Type	Properties
Parallelogram 	• Opposite sides are equal and parallel • Opposite angles are equal
Rectangle 	• Opposite sides are equal and parallel • All angles are right angles (90°)
Square 	• Opposite sides are parallel • All sides are equal • All angles are right angles (90°)
Rhombus 	• Opposite sides are parallel • All sides are equal • Opposite angles are equal • Diagonals bisect each other at right angles (90°) — perpendicular
Trapezoid 	• One pair of opposite sides is parallel 
Kite 	• Two pairs of adjacent sides are equal • One pair of opposite sides are equal • One diagonal bisects the other • Diagonals intersect at right angle (90°)

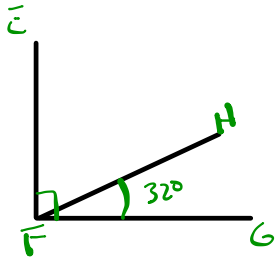
Angles

Complementary angles: Angles = 90°



$\angle DBC = 90° - 25° = 65°$

Comp. Angles



$\angle HFG = 32°$

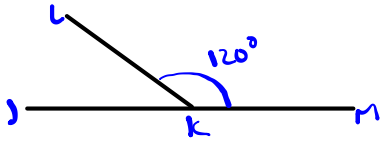
What is $\angle EFH$?

$90° - 32° = 58°$

$\angle EFH = 58°$ – Comp. Angles

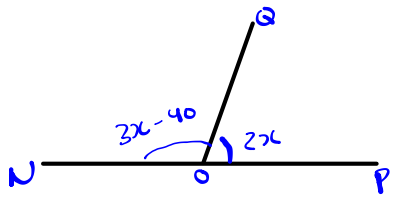
Angles

Supplementary angles: Angles = 180° (Straight line) $\angle$ = angle



$\angle JKL$? $180° - 120° = 60°$

$\angle JKL = 60°$ – Sup Angles



$\angle NOQ = 3x - 40$

$3x - 40 + 2x = 180$ – Sup Ang.

$5x - 40 = 180$ +40

$\frac{5x}{5} = \frac{220}{5}$

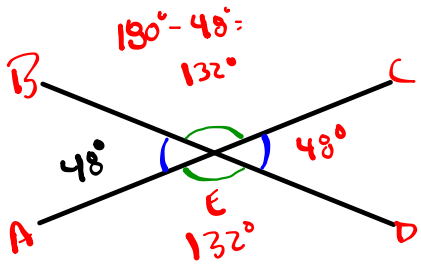
$x = 44$

$\angle NOQ = 3(44) - 40 = 92°$

$\angle QOP = 2(44) = 88°$

Angles ∠

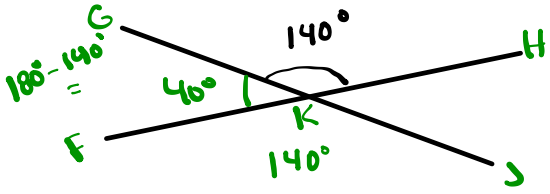
Vertically Opposite angles (VOA):



$\angle CED = 48^\circ$ VOA

$\angle BEC = 132^\circ$ Supp. Angles

$\angle AED = 132^\circ$ VOA



$\angle FKJ = 140^\circ$ VOA

$\angle FKG = 40^\circ$ Supp. Angles

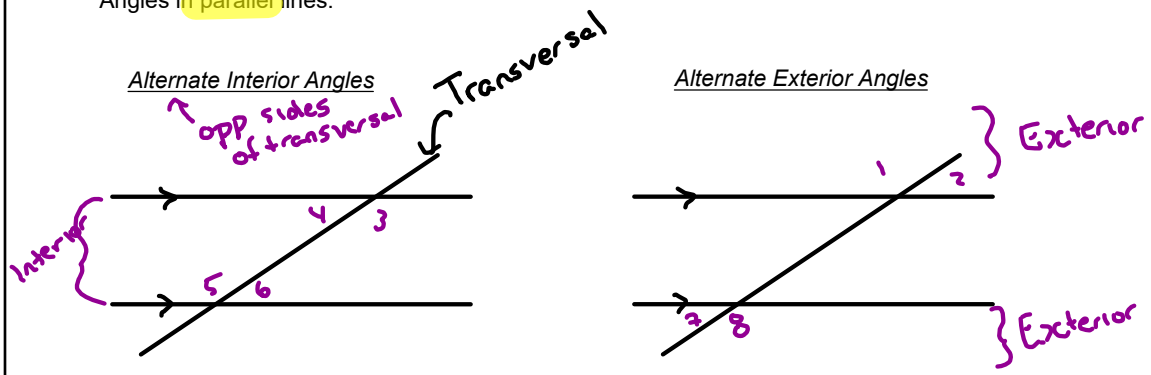
$\angle HKJ = 40^\circ$ VOA

Angles

Angles in parallel lines:

Alternate Interior Angles (opp sides of transversal)

Alternate Exterior Angles



$\angle 4 = \angle 6$

$\angle 3 = \angle 5$

$\angle 1 = \angle 8$

$\angle 2 = \angle 7$

Ex $\angle 5 = 133^\circ = \angle 3$ - Alt Int. Ang.

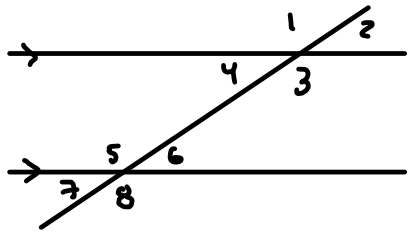
$\angle 4 = 180^\circ - 133^\circ = 47^\circ$ - Supp. Ang.

$\angle 6 = 47^\circ$ - Alt Int Ang.

Angles

Angles in parallel lines:

Corresponding Angles



- Same side of transversal
- 1 interior + 1 exterior angles

$\angle 1 = \angle 5$

$\angle 4 = \angle 7$

$\angle 2 = \angle 6$

$\angle 3 = \angle 8$