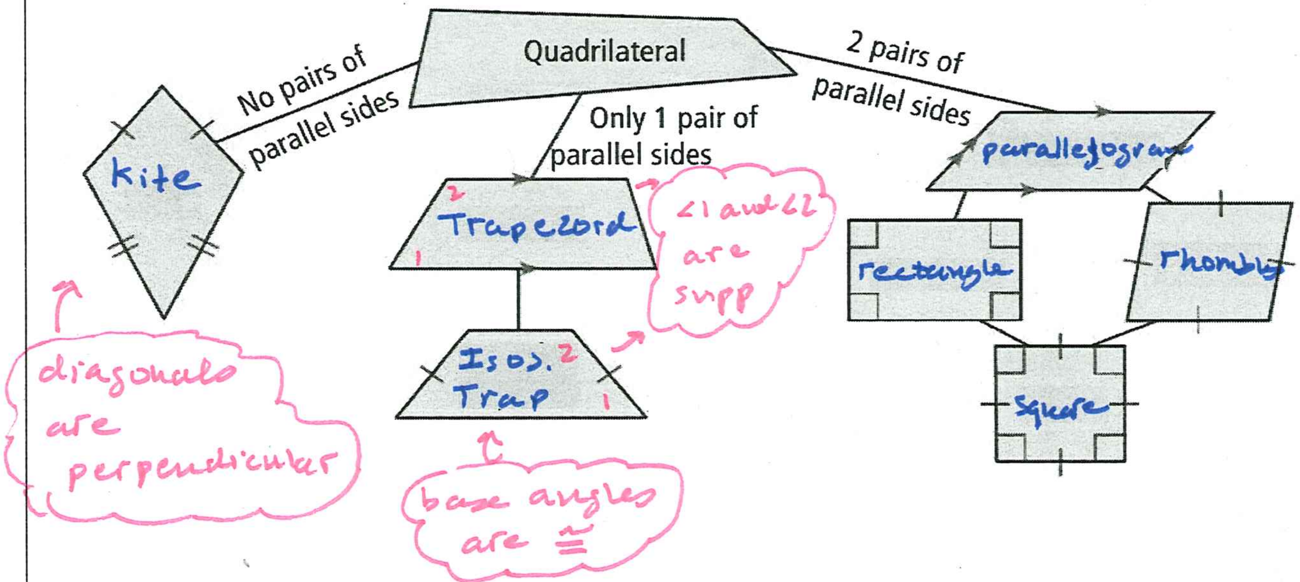
Geometry Spring Final Exam Note Sheet: Name: ____________________

Quadrilaterals:



Properties of Quadrilaterals

- If quadrilateral is a parallelogram then
  - Opposite sides are congruent
  - Opposite angles are congruent
  - Consecutive angles are supplementary
  - Diagonals bisect each other
- If quadrilateral al is a rhombus then
  - Diagonals are perpendicular
- If quadrilateral is a rectangle then
  - Diagonals are congruent

The quadrilateral is a parallelogram if…

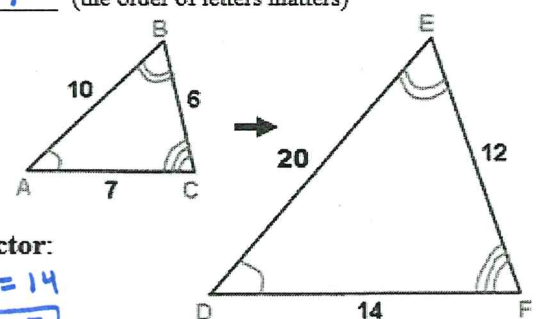
- The opposite angles are congruent
- The opposite sides are equal
- The diagonals bisect each other
- The consecutive angles are supplementary.

Ch. 8-9A: Similarity and Special Right Triangles

Similarity Postulate: Two polygons are similar if and only if …

- Corresponding angles are congruent.
- Corresponding sides are proportional. (same ratio)

Similarity Statements: $\triangle ABC \sim \triangle DEF$ (the order of letters matters)



Angles: $\angle A \cong \angle D$, $\angle B \cong \angle E$, $\angle C \cong \angle F$

Sides: $\frac{DE}{AB} = \frac{EF}{BC} = \frac{DF}{AC}$

$\frac{20}{10} = \frac{12}{6} = \frac{14}{7} \Rightarrow \boxed{\frac{2}{1}}$

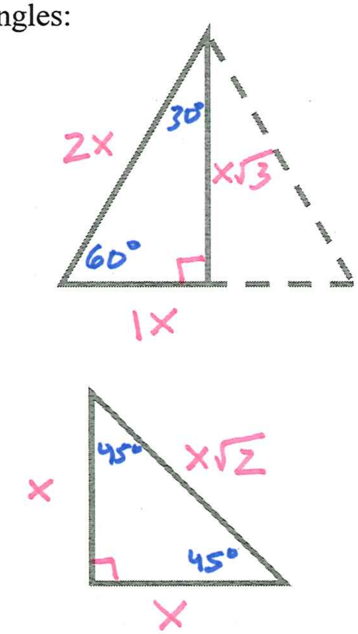
Scale Factor:

$7 \cdot k = 14$

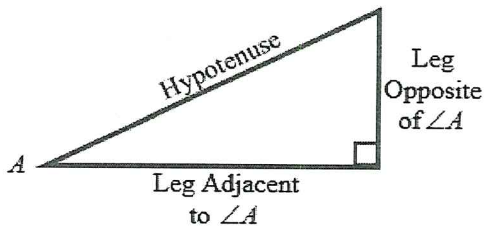
$\boxed{k = 2}$

Triangles can be proven similar by AA~ or SAS~ or SSS~.

Special Right Triangles:



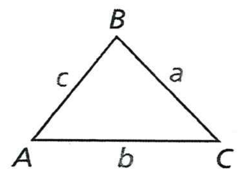
Ch. 9B: Right Triangle Trigonometry



SOHCAHTOA:

$\sin(A) = \frac{opp}{hyp}$ $\cos(A) = \frac{adj}{hyp}$ $\tan(A) = \frac{opp}{adj}$

Ch. 9C: Law of Sines and Cosines



Law of Cosines:

$a^2 = b^2 + c^2 - 2bc\cos(A)$

$b^2 = a^2 + c^2 - 2ac\cos(B)$

$c^2 = a^2 + b^2 - 2ab\cos(C)$

Law of Sines:

$\frac{\sin(A)}{a} = \frac{\sin(B)}{b}$

$\frac{\sin(B)}{b} = \frac{\sin(C)}{c}$

$\frac{\sin(A)}{a} = \frac{\sin(C)}{c}$

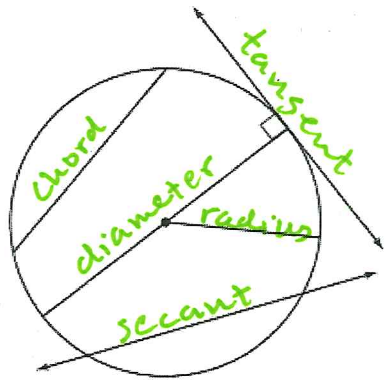
Area of a Triangle:

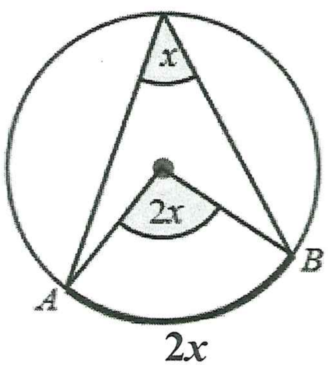
$Area = \frac{1}{2}bc\sin(A)$

$= \frac{1}{2}ac\sin(B)$

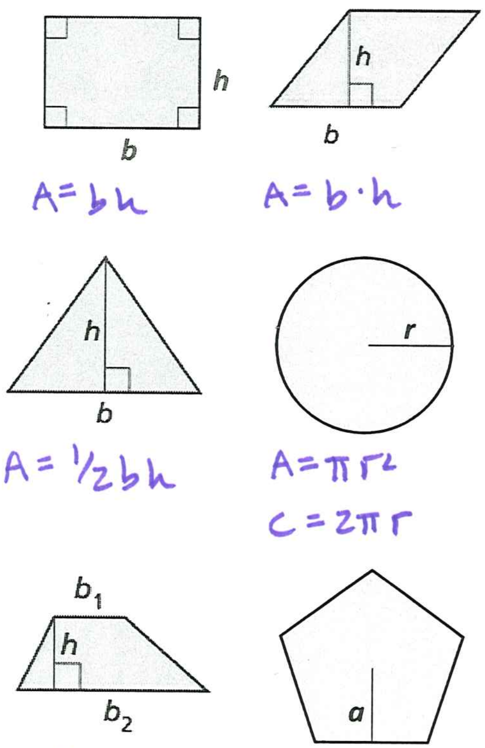
$= \frac{1}{2}ab\sin(C)$

Ch. 10: Circles





Ch. 11: Area



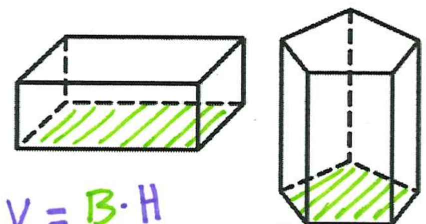
$A = bh$ $A = b \cdot h$

$A = \frac{1}{2}bh$ $A = \pi r^2$ $C = 2\pi r$

$A = \frac{1}{2}(b_1 + b_2)h$ $A = \frac{1}{2}ap$

Ch. 11: Surface and Volume

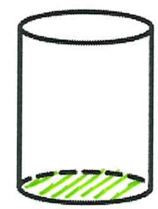
Prism:



$V = B \cdot H$ ← area of base

S = sum of faces

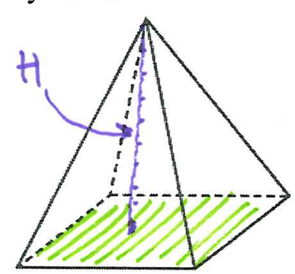
Cylinder:



$V = \pi r^2 H$

$S = 2\pi r^2 + 2\pi r H$

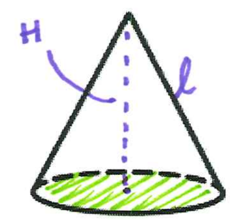
Pyramid:



$V = \frac{1}{3} B H$

S = sum of all faces

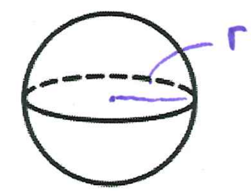
Cone:



$V = \frac{1}{3}\pi r^2 H$

$S = \pi r^2 + \pi r l$

Sphere:



$V = \frac{4}{3}\pi r^3$

$S = 4\pi r^2$