Warm-Up

1. Find the value of x

35

40   105 x

$$35 + 40 = 75$$

$$180 - 75 = 105$$
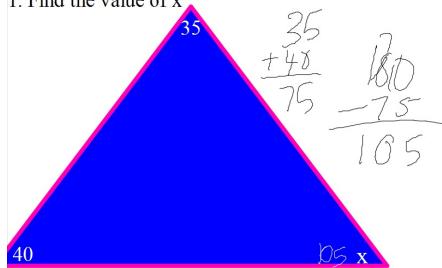
2. What makes two triangles similar?

Same Shape

different

3. What does the following acroynyms mean?
ASA, SAS, SSS, and AAS

Angle Side Angle
Side Angle Side
Side Side Side
Angle Angle Side

4. make sure you have a whiteboard, dry erase marker, and a eraser.

✓ !Got it

ACT/SAT Practice:

4) For all x≠0 and y≠0, $\dfrac{(2x^{-3}y^4)^3}{(4xy)^2}$ = ?

$$= \dfrac{2^3 x^{-9} y^{12}}{4^2 x^2 y^2}$$

$$\dfrac{8x^{-9}y^{12}}{16x^2y^2} = \dfrac{1}{2}x^{-7}y^{10}$$

$$\dfrac{1}{2} \cdot \dfrac{1}{x^7} \cdot y^{10} = \dfrac{y^{10}}{2x^7}$$

What is the sum of the angles of a triangle. Draw an example.

Sum = 180

60
60   60
equilateral.

What is Pythagorean Theorem? When do you use Pythagorean Theorem?

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

finding the missing side
of a right △

What is a **perpendicular bisector?** Draw a triangle with a perpendicular bisector in it.

p - line that forms a right $\angle$

b - divides into 2 equal halves.

pb - Line that divides a triangle into 2 equal halves and forms a right $\angle$

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5) Find m<D.

O

2x + 5

4x - 3 G

2x - 10

D

$8x - 8 = 180$

$\quad +8 \quad + 8$

$\dfrac{8x}{8} = \dfrac{188}{8}$

$x = 23.5$

$m<D = 2(23.5) - 10$

$m<D = 47 - 10$

$m<D = 37$

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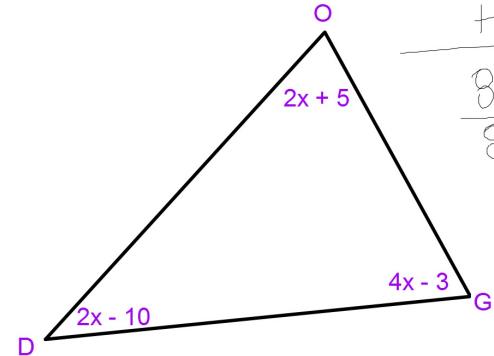
7) A right triangle has a leg that measures 8 cm and its hypotenuse measures 22 cm. What is the length of the other leg?

22

8
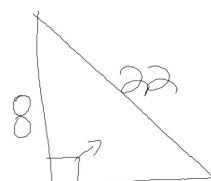
$a^2 + b^2 = c^2$

$8^2 + b^2 = 22^2$

$64 + b^2 = 484$

$-64 \qquad -64$

$\sqrt{b^2} = \sqrt{420}$

$b = \sqrt{420}$

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8) Given △ABC with a perpendicular bisector AD. CD = 8x - 13 and DB = 2x + 5. What is the length of CB?

A

C   8x-13 D 2x+5 B

$8x - 13 = 2x + 5$

$-2x + 13 \quad -2x + 13$

$6x = 18$

$x = 3$

$CD = 8(3) - 13 = 11$

$DB = 2(3) + 5 = 11$

$CB = 22$
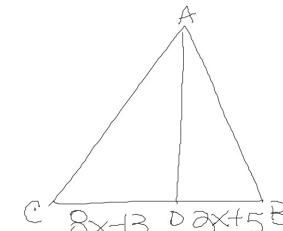
## Unit 1 ~ Geometry
Objectives: G.SRT. 2-5

Day 4 ~ Similarity

Similar Figures:
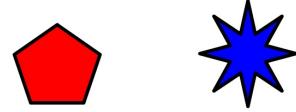
<u>Same</u> Shape, <u>different</u> Size
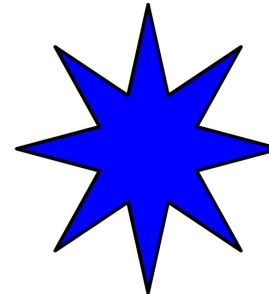
~ ← symbol for similar

Properties:
1) ≅ angles
2) proportional sides
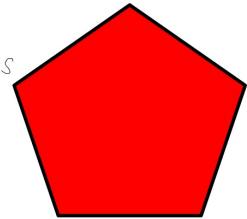
Similar Triangles:

1) AA~

angle-angle similarity
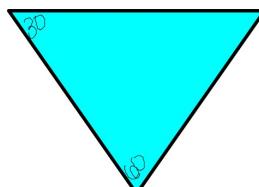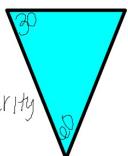
2) SSS~

side-side-side similarity

$\frac{3}{6} = \frac{1}{2}$

$\frac{2}{4} = \frac{1}{2}$

$\frac{3}{6} = \frac{1}{2}$

yes

3   3

3

4

6   6

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yes by AA~

example 1: Is ΔABC ~ ΔDEF? Why?

$$\frac{8}{20} = .4$$

$$\frac{6}{35} = .17$$

$$\frac{7}{15} = .46$$

Not similar

example 2: Is ΔABC ~ ΔDEC? Why?

Vertical angles are ≅

kissing V's
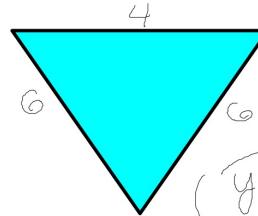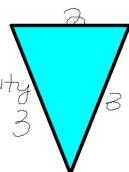
yes by AA~
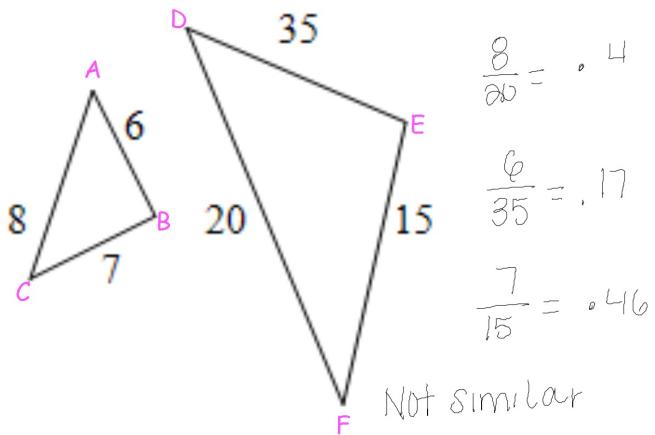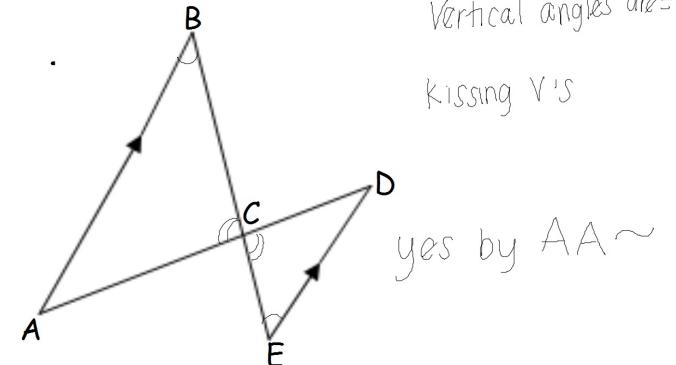
example 3:
The pair of triangles is similar. Solve for x.

$$\frac{x-2}{5} \diagdown \frac{x+1}{15}$$

$$5x + 5 = 15x - 30$$
$$-5x + 30 \quad -5x + 30$$
$$\overline{\quad 35 = 10x \quad}$$

$$x = 3.5$$
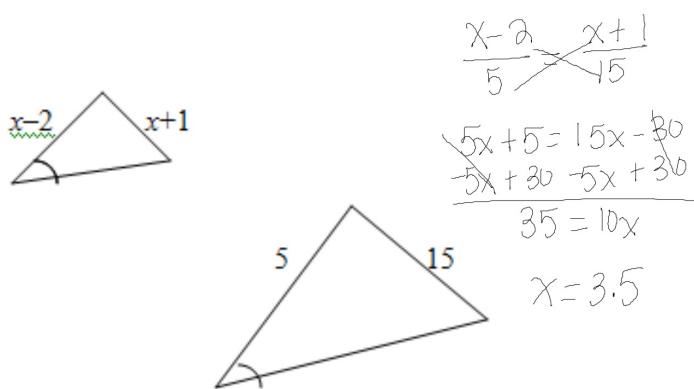
example 4:

ΔLMN ~ ΔQRS. Find the perimeter of ΔQRS.

P = 84

P = x

$$\frac{7}{12} \diagdown \frac{x}{84}$$

$$12x = 588$$

$$x = 49$$

$$p = 49$$

$$\begin{array}{r} 35 \\ 37 \\ 12 \\ \hline 84 \end{array}$$
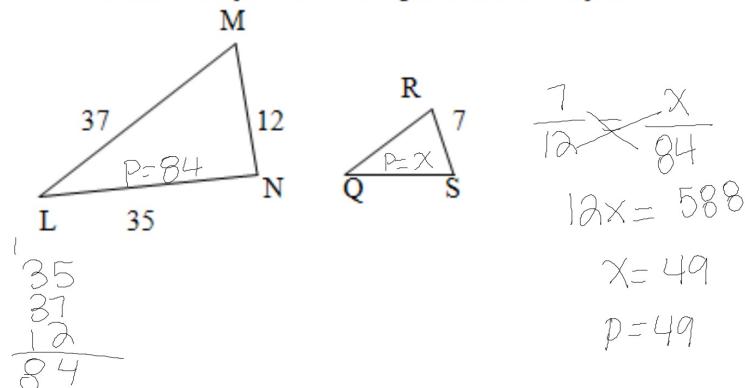
Side Splitter Theorem:
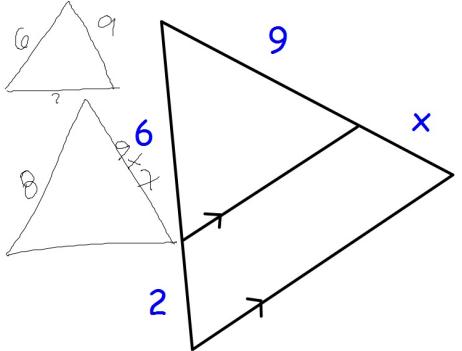
The triangle inside the triangle with parallel lines are similar.

$$\frac{6}{8} \times \frac{9}{x+9}$$

$$6x + 54 = 72$$
$$\quad -54 \quad -54$$
$$6x = 18 \quad \boxed{x = 3}$$

example 5: Solve for x and y.

$$\frac{x}{x+2} \times \frac{15}{18}$$
$$15x + 30 = 18x$$
$$\quad -15x \quad -15x$$
$$30 = 3x$$
$$x = 10$$

$$\frac{y}{12} \times \frac{15}{18}$$
$$18y = 180$$
$$y = 10$$