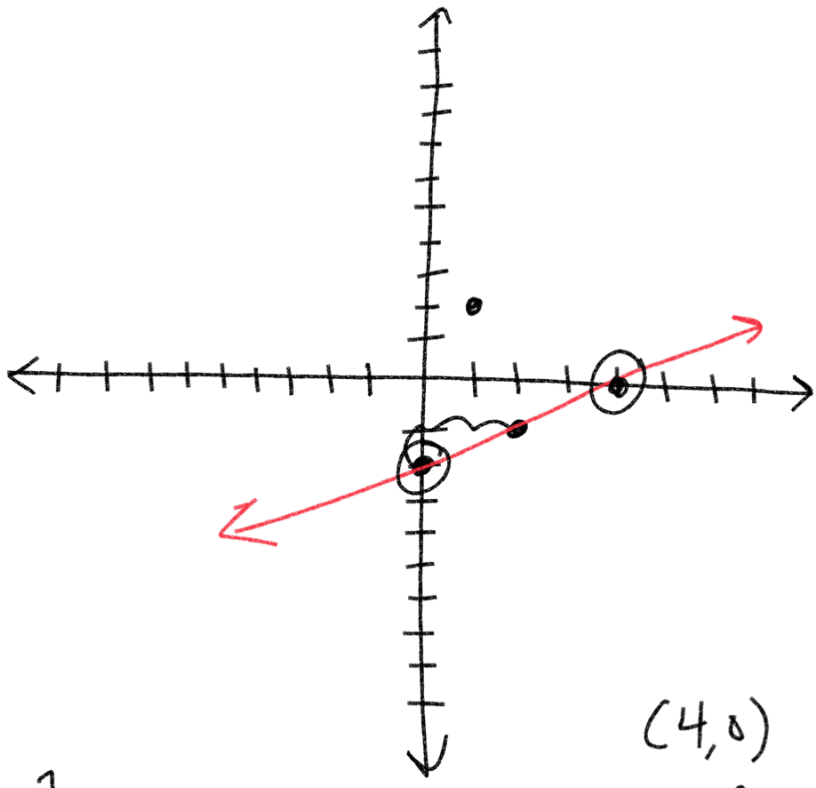
S-G Geometry Session 12 7/18

Graph.

$3x - 6y = 12$



Slope-Intercept Method

$y = mx + b$

$3x - 6y = 12$

$-3x \qquad -3x$

$\frac{-6y}{-6} = \frac{-3x}{-6} + \frac{12}{-6}$

$y = \frac{1}{2}x - 2$ ← y-int

↑ slope $= \frac{1}{2} = \frac{\text{up } 1}{2 \text{ right}}$

$x = 0$: $\frac{-6y}{-6} = \frac{12}{-6}$, $y = -2$, $(0, -2)$

$y = 0$: $\frac{3x}{3} = \frac{12}{3}$, $x = 4$, $(4, 0)$

Find the linear equation for a parallel line to $3x - 6y = 12$ that goes through $(1, 2)$ (x y)

Find given slope (m) $y = mx + b$

$x = 1 \quad y = 2$

$y = mx + b$

$2 = \left(\frac{1}{2}\right)(1) + b$

$2 = \frac{1}{2} + b$

$-\frac{1}{2} \quad -\frac{1}{2}$

$b = 2 - \frac{1}{2}$

$\frac{4}{2} - \frac{1}{2} = \frac{3}{2}$

$3x - 6y = 12$

$-3x \qquad -3x$

$\frac{-6y}{-6} = \frac{-3x}{-6} + \frac{12}{-6}$

$b = \frac{3}{2}$

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

$y = \frac{1}{2}x - 2$

$y = mx + b$

$y = \frac{1}{2}x + \frac{3}{2}$

Determine the linear equation for a line perpendicular to $y = -\frac{3}{4}x + 8$ that goes through the point $(6, -9)$ $x = 6$ $y = -9$

Find given slope: $y = \frac{3}{4}x + 8$ $m = -\frac{3}{4}$

Find needed slope: perpendicular slope

opposite inverse

Given slope: $-\frac{3}{4} \rightarrow \frac{3}{4} \rightarrow \frac{4}{3}$

switch sign! flip

$m = \frac{4}{3}$

$y = mx + b$

$-9 = \left(\frac{4}{3}\right)(6) + b$

$-9 = \frac{24}{3} + b$

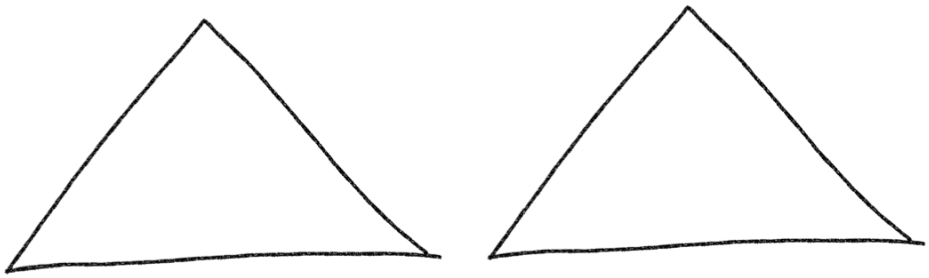
$-9 = 8 + b$

$-8 \quad -8$

$b = -17$

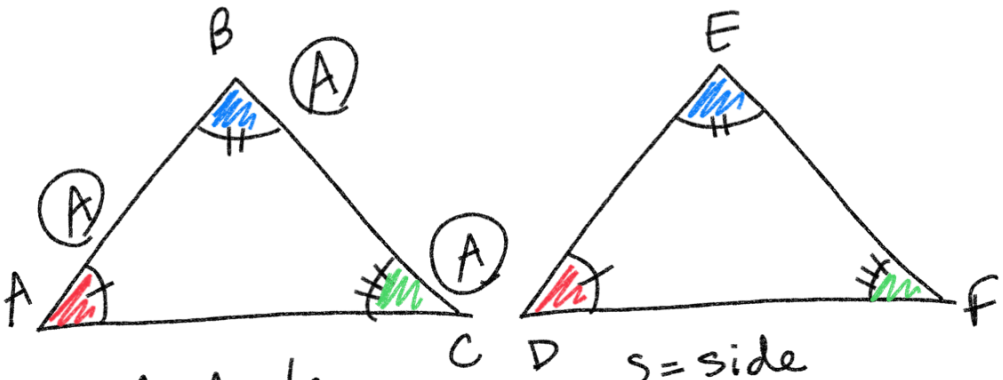
$y = mx + b$

$y = \frac{4}{3}x - 17$



similar triangles

"proportional"
equal angles,
not equal sides



$\measuredangle A \cong \measuredangle D$

$\measuredangle B \cong \measuredangle E$

$\measuredangle C \cong \measuredangle F$

A-Angle

S=side

$\triangle ABC \not\cong \triangle DEF$

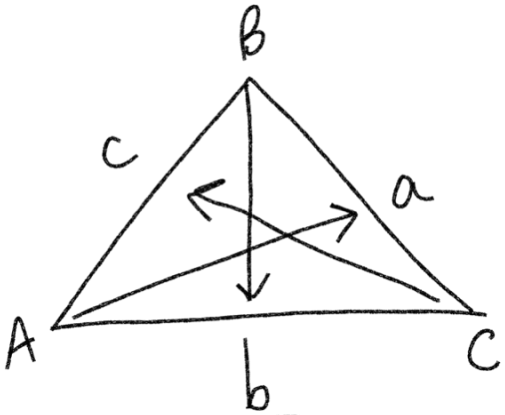
$\triangle ABC$ $\sim$ $\triangle DEF$

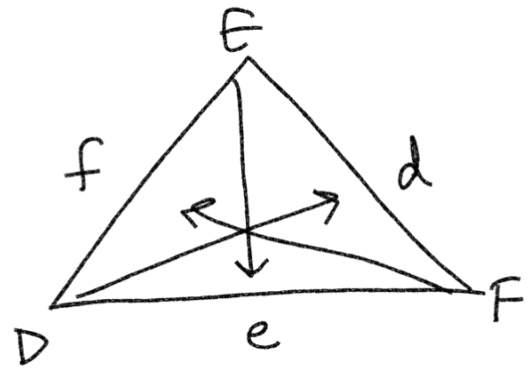
similar

similar, but not congruent.

You Need At Least ONE SIDE CONGRUENCY to have TRIANGLE CONGRUENCY

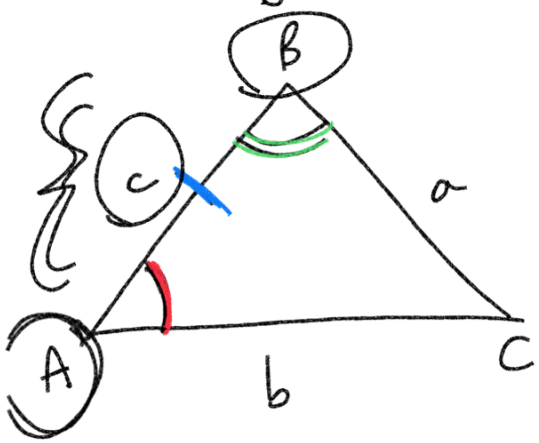
AAA is similarity, not a congruency

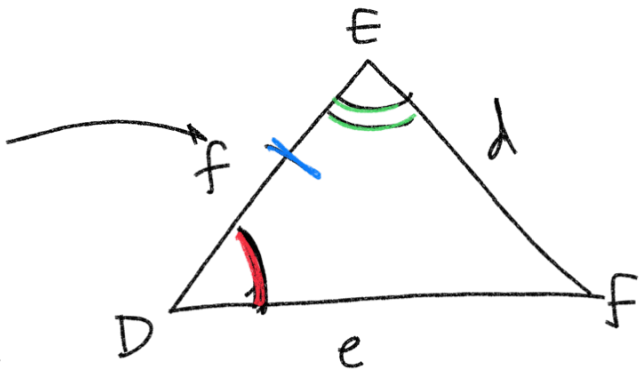




CAPITALS for Angles

lowercase for sides





∠AcB

ASA

Congruency

Angle-Side-Angle

$\triangle ABC \cong \triangle DEF$

1.) Do you have at least one lowercase?

yes ✓

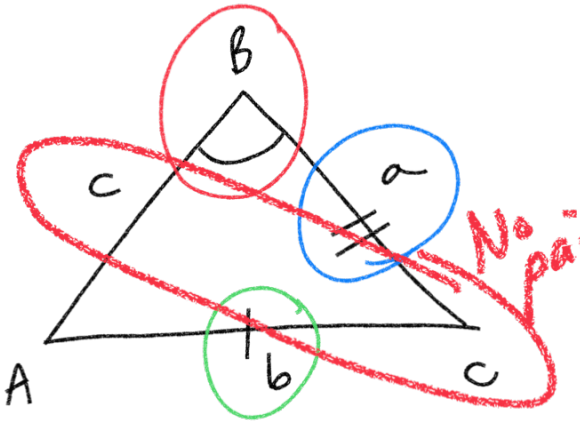
2.) Representative from A, B, C?

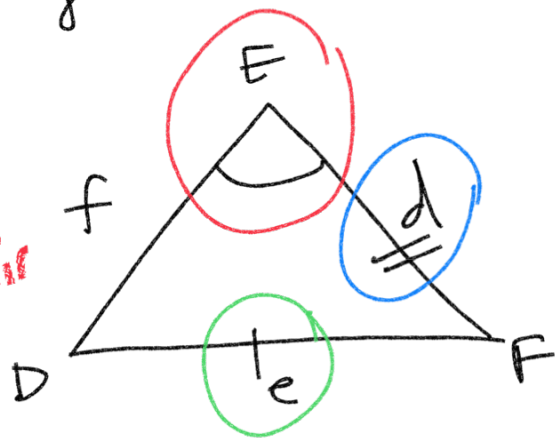
yes ✓

In order to have triangle congruency,

1.) Need at least one side

2.) Need a representative from each angle-side pair





at least

1.) one side?

yes ✓

2.) one rep ABC

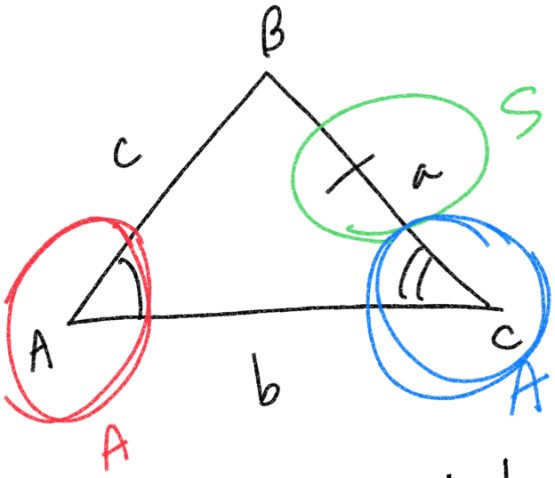
No!!

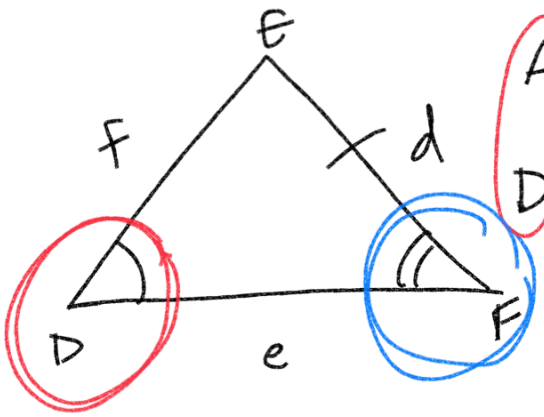
Bab

↑↑↑

~~ASS~~

Not congruent





$A + B + C = 180°$

$D + E + F = 180°$

$\measuredangle B$ must be equal $\measuredangle E$

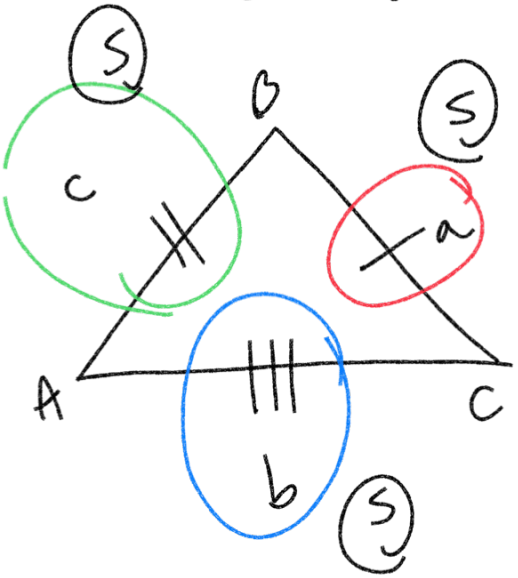
$\triangle ABC \cong \triangle DEF$ A C a

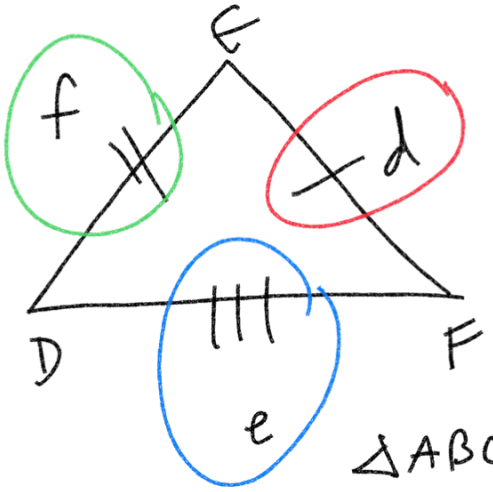
AAS congruency

If you have 2 congruent angles, you actually have 3.

1.) at least one side? yes ✓

2.) one Rep?





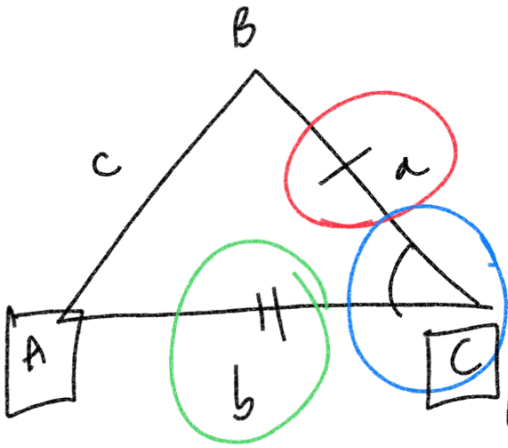
a b c

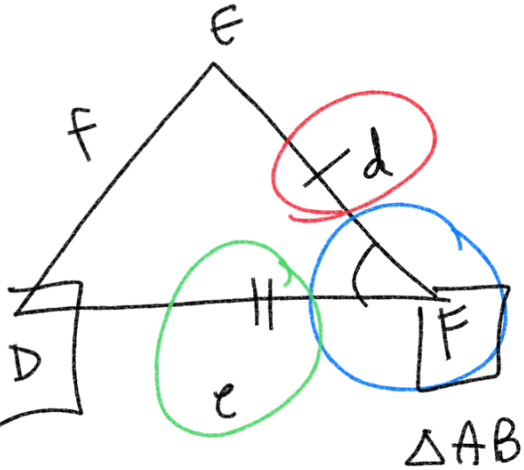
SSS congruency

$\triangle ABC \cong \triangle DEF$

1.) at least one side? yes ✓

2.) one rep? yes ✓





a C b

SAS congruency

$\triangle ABC \cong \triangle DEF$

1.) at least one side? yes?

2.) one rep? ye!

Congruencies: SSS SAS AsA AAS

similarities: ~~AAA~~ not an option!

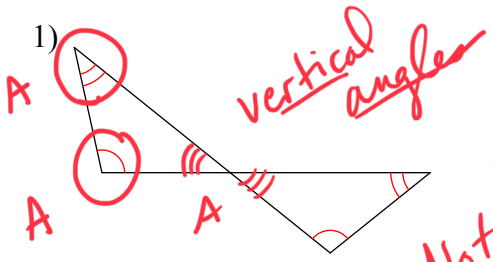
Geometry Name_____ ID: 1

Assignment

Date_____ Period____

Determine if the two triangles are congruent. If they are, state how you know.

1)



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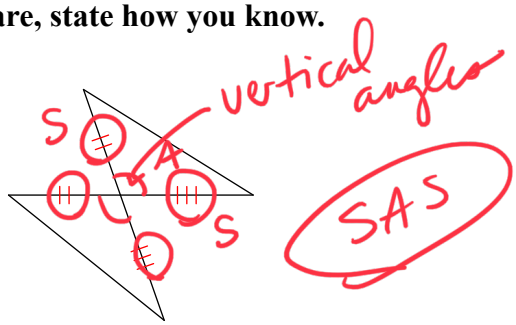

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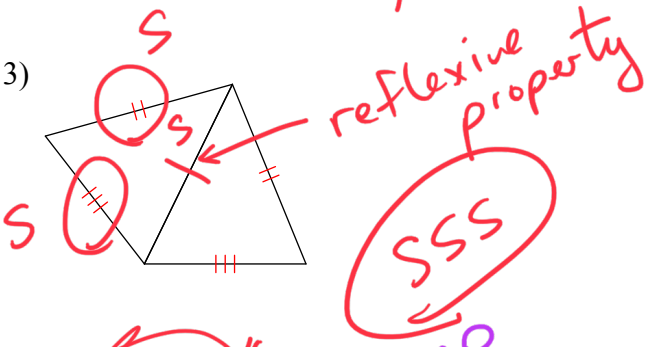

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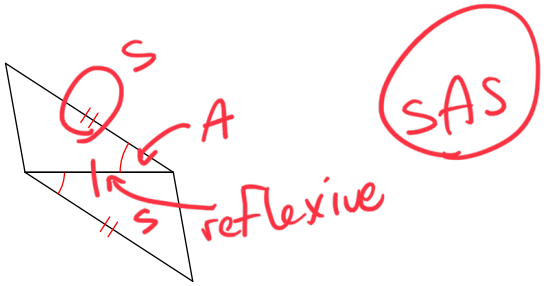

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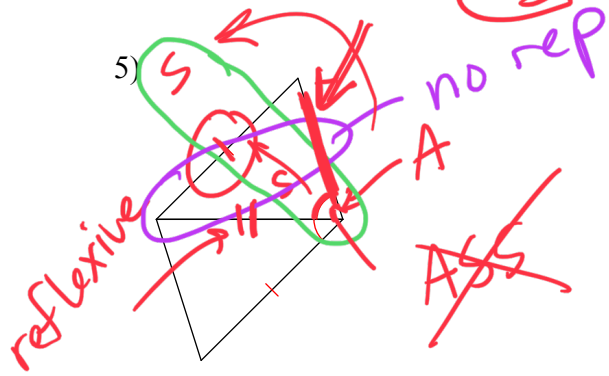

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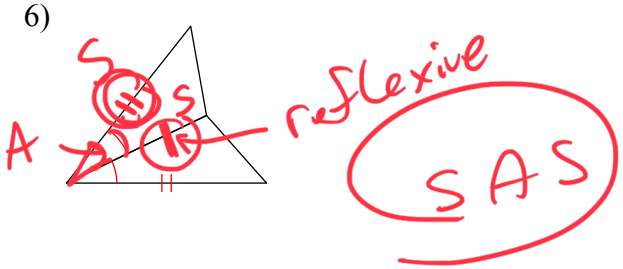

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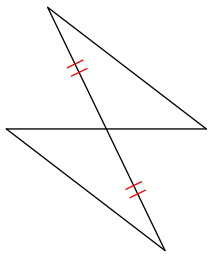

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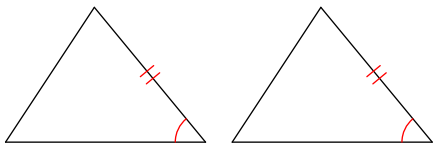

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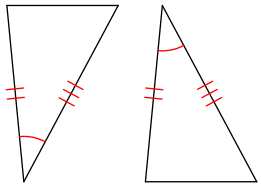

10)