

Corresponding angles

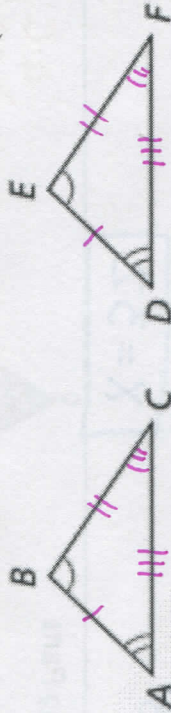
$$\angle A \cong \angle D, \angle B \cong \angle E, \angle C \cong \angle F$$

Corresponding sides

$$\overline{AB} \cong \overline{DE}, \overline{BC} \cong \overline{EF}, \overline{AC} \cong \overline{DF}$$

TASK 1: State the corresponding part when given a specific part. Each member should do one.

- a) $\angle A \cong \angle D$ and $\overline{AB} \cong \overline{DE}$
- b) $m\angle B = m\angle E$ and $\overline{AC} \cong \overline{DF}$
- c) $\angle C \cong \angle F$ and $BC = EF$

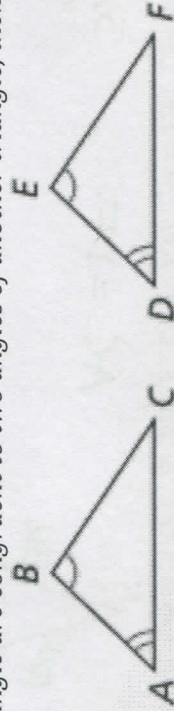


TASK 2: Proofs are back. Fill in the blanks below. Each member should do one.

- a) Reflexive: For any triangle $\triangle ABC$, $\triangle ABC \cong \triangle ABC$
- b) Symmetric: If $\triangle ABC \cong \triangle DEF$, then $\triangle DEF \cong \triangle ABC$
- c) Transitive: If $\triangle ABC \cong \triangle DEF$ and $\triangle DEF \cong \triangle JKL$, then $\triangle ABC \cong \triangle JKL$

THIRD ANGLE THEOREM

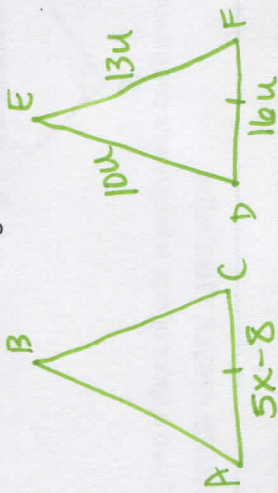
If two angles of one triangle are congruent to two angles of another triangle, then the third angles are also congruent.



If $\angle A \cong \angle D$ and $\angle B \cong \angle E$, then $\angle C \cong \angle F$.

TASK 3: Applying the Theorems

Draw and label a diagram. Given $\triangle ABC \cong \triangle DEF$, $DE = 10u$, $EF = 13u$, $DF = 16u$, & $AC = 5x - 8$. Find x .



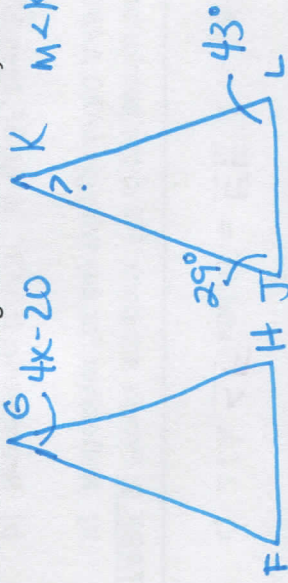
$AC = DF$

$5x - 8 = 16$
 $5x = 24$

$x = \frac{24}{5}$

TASK 4: More Application of the Theorems

Draw and label a diagram. If $\triangle FGH \cong \triangle KLM$, $m\angle G = (4x - 20)^\circ$, $m\angle J = 29^\circ$, & $m\angle L = 43^\circ$. Find x .



$m\angle K = 180 - (29 + 43) = 108^\circ$

$4x - 20 = 108$

$4x = 128$

$x = 32$

TASK 5: Final Application of Corresponding Parts

Solve for x and y if $\triangle ABC \cong \triangle XYZ$

$x^2 - 4x = 45$

$x^2 - 4x - 45 = 0$

$(x - 9)(x + 5) = 0$

$x - 9 = 0$ $x + 5 = 0$

$x = 9, -5$

$2y^2 - 2y = -y + 10$

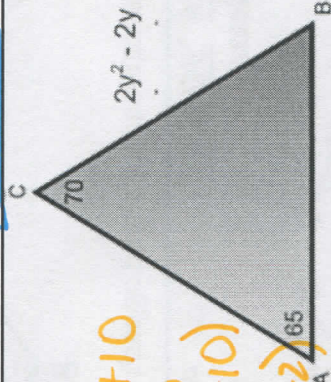
$2y^2 - y - 10 = 0$

$(2y^2 + 4y)(-5y - 10)$

$2y(y + 2) - 5(y + 2) = 0$

$(2y - 5)(y + 2) = 0$

$y = \frac{5}{2}, -2$



~~$a \cdot c$~~
 ~~-20~~ ~~$+4$~~
 ~~-5~~ ~~-1~~ ~~b~~

Still need help with: