Name: Key Date: _____ Period: _____

5.2 Congruent Polygons CYU

☑ *Use when you get it right all by yourself*

S *Use when you did it all by yourself, but made a silly mistake*

H *Use when you could do it alone with a little help from teacher or peer*

G *Use when you completed the problem in a group*

X *Use when a question was attempted but wrong (get help)*

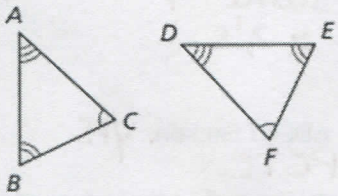
N *Use when a question was not even attempted*

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Identifying congruent corresponding parts	1	2	8, 9, 10
Writing congruence statements	1	2	
Solving for variables using corresponding parts	3	4	4
Proving & Explaining polygons are congruent	5	8	9, 10
Third Angles Theorem	6	7, 8	7, 9
Segment Bisector	8		
Definition of midpoint	8		
Vertical Angles	8		9
AIA, AEA, SSIA, SSEA, Corresponding Angles	8		
Congruent segments/angles	8		9, 10
Definition of Isosceles Triangles			9, 10

Identify all pairs of congruent corresponding parts. Then write another congruence statement for the polygons.

1. $\triangle ABC \cong \triangle DEF$

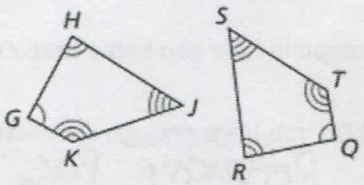
$\angle A \cong \angle D$
$\angle B \cong \angle E$
$\angle C \cong \angle F$
$\overline{AB} \cong \overline{DE}$
$\overline{BC} \cong \overline{EF}$
$\overline{AC} \cong \overline{DF}$



$\triangle BCA \cong \triangle EFD$

2. $GHJK \cong QRST$

$\angle G \cong \angle Q$
$\angle H \cong \angle R$
$\angle J \cong \angle S$
$\angle K \cong \angle T$
$\overline{GH} \cong \overline{QR}$
$\overline{HJ} \cong \overline{RS}$
$\overline{JK} \cong \overline{ST}$
$\overline{GK} \cong \overline{QT}$

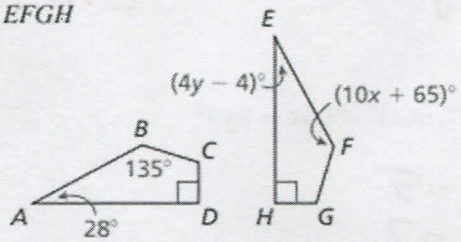


HJKG ≅ RSTQ

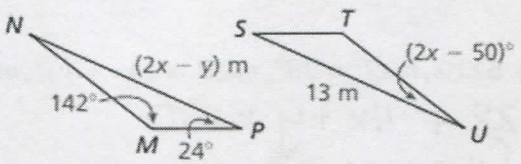
Find the values of x and y.

3. $ABCD \cong EFGH$

x = 7
y = 8



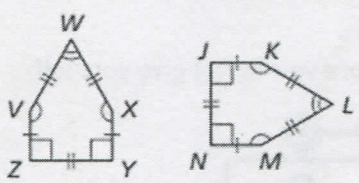
4. $\triangle MNP \cong \triangle TUS$



x = 32 y = 51

Show that the polygons are congruent. Explain your reasoning in a complete sentence.

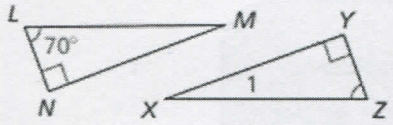
5.



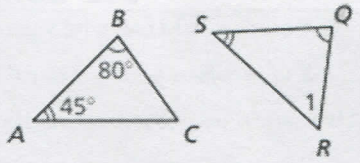
$\overline{WX} \cong \overline{LM}$; $\overline{XY} \cong \overline{MN}$; $\overline{YZ} \cong \overline{NJ}$; $\overline{VZ} \cong \overline{KJ}$; $\overline{WV} \cong \overline{LK}$
$\angle V \cong \angle K$; $\angle W \cong \angle L$; $\angle X \cong \angle M$; $\angle Y \cong \angle N$, $\angle Z \cong \angle J$

all parts that are corresponding are ≅. CPCTC SO... VWXYZ ≅ KLMNJ

Find the measure of angle one.

6. 

20°

7. 

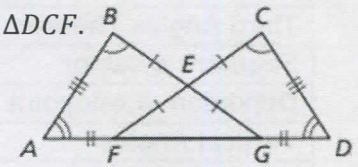
55°

8. **PROOF ON A SEPARATE PAPER:** *Triangular postage stamps, like the ones shown, are highly valued by stamp collectors. Prove that ΔAEB ≅ Δ CED.*

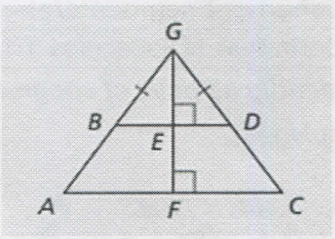
Given: $\overline{AB} \parallel \overline{DC}, \overline{AB} \cong \overline{DC}, E$ is the midpoint of $\overline{AC}$ & $\overline{BD}$.

Prove: $\Delta AEB \cong \Delta DCF$

9. **PROOF ON A SEPARATE PAPER:** *Use the information in the figure to prove that* $\Delta ABG \cong \Delta DCF$.



10. **In the diagram, ABEF ≅ CDEF.**



a) Explain how you know that $\overline{BE} \cong \overline{DE}$ & $\angle ABE \cong \angle CDE$. ≅: CPCTC

b) Explain how you know that ∠GBE ≅ ∠GDE. ≅: both Supplementary to the Same ∡

c) Explain how you know that ∠GEB ≅ ∠ GED. both Rt ≅ ∡'s

d) Do you have enough information to prove that ΔBEG ≅ ΔDEG? Explain. Yes

Reflexive POC, Third ∡'s Thm, CPCTC

Use the given information to write and solve a system of linear equations to find the values of x and y.

11. $\Delta LMN \cong \Delta PQR, m\angle L = 40^o, m\angle M = 90^o, m\angle P = (17x - y)^o, m\angle R = (2x + 4y)^o$

$40 + 90 + m\angle N = 180°$

$m\angle N = 50°$

$x = 3$ & $y = 11$

$\begin{cases} 2x + 4y = 50 \\ 17x - y = 40 \end{cases}$

12. $\Delta STU \cong \Delta XYZ, m\angle T = 28^o, m\angle U = (4x + y)^o, m\angle X = 130^o, m\angle Y = (8x \quad 6y)^o$

$130 + 28 + 4x + y = 180$

$\begin{cases} 4x + y = 22 \\ 8x - 6y = 28 \end{cases}$

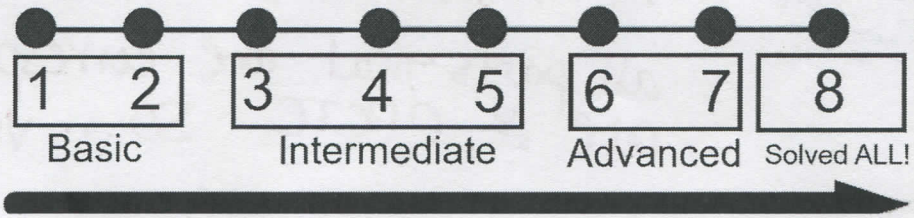
$x = 5$

$y = 2$

CYU Reflection: *How far can you go: basic, intermediate, or advanced?*

Rate your mastery level!

How confident are you with the skills this CYU covered? Circle the score you would give yourself.



8.)

Statements	Reasons
1. $\overline{AB} \parallel \overline{DC}$, $\overline{AB} \cong \overline{DC}$; E is the mdpt of $\overline{AC}$ & $\overline{BD}$	1. Given
2. $\angle AEB \cong \angle CED$	2. Def of Vertical $\angle$'s
3. $\angle BAE \cong \angle DCE$; $\angle ABE \cong \angle CDE$	3. AIA Thm
4. $\overline{AE} \cong \overline{CE}$; $\overline{BE} \cong \overline{DE}$	4. Def of mdpt
5. $\triangle AEB \cong \triangle CED$	5 CPCTC or All corresponding parts are $\cong$.

9.)

Statements	Reasons
1 $\overline{AB} \cong \overline{DC}$; $\overline{AF} \cong \overline{DG}$, $\overline{BE} \cong \overline{CE}$; $\cong \overline{EF} \cong \overline{EG}$, $\angle B \cong \angle C$; $\angle A \cong \angle D$	1. Given (marked in diagram)
2. $\angle BGA \cong \angle CFD$	2. Third $\angle$'s Thm
3. $AF + FG = AG$ $DG + FG = DF$ $BE + EG = BG$ $CE + EF = CF$	3. Seg. Add. Post.
4 $AF = DG$, $BE = CE = EF = EG$	4. Def. of $\cong$ Seg.
5. $DG + FG = AG$ $BE + EG = CF$	5. Substitution POE
6. $DF = AG$; $BG = CF$	6. Transitive POE
7. $\overline{DF} \cong \overline{AG}$; $\overline{BG} \cong \overline{CF}$	7. Def. of $\cong$ Seg.
8. $\triangle ABG \cong \triangle DCF$	8. CPCTC or All corresponding parts are $\cong$.