Name _____ Date _____

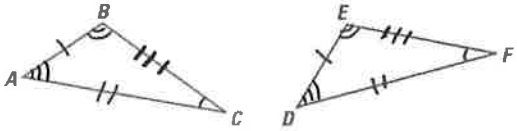
Congruent Triangles

- triangles that are the same Shape and Size
- each triangle has six parts: 3 Sides and 3 Angles
- congruence is not affected by the following transformations:
- Translations, Rotations, Reflections

Definition of Congruent Triangles (CPCTC):

- Two triangles are congruent if and only if their Corresponding parts are congruent.
- CPCTC: Corresponding Parts of Congruent Triangles are Congruent

1)



If the corresponding sides are congruent AND angles are congruent, then the triangles are congruent

1. $\overline{AB} \cong$ $\overline{DE}$ 1. $\angle C \cong$ $\angle F$ $\Delta ABC \cong$ ΔDEF
2. $\overline{AC} \cong$ $\overline{DF}$ 2. $\angle B \cong$ $\angle E$ (This must be written in
3. $\overline{BC} \cong$ $\overline{EF}$ 3. $\angle A \cong$ $\angle D$ corresponding order)

2) Given that $\Delta ABC \cong \Delta QRS$, what sides are congruent? What angles are congruent?

If the corresponding sides are congruent AND angles are congruent, then the triangles are congruent

1. $\overline{AB} \cong$ $\overline{QR}$ 1. $\angle C \cong$ $\angle S$ $\Delta ABC \cong$ ΔQRS
2. $\overline{AC} \cong$ $\overline{QS}$ 2. $\angle B \cong$ $\angle R$ (This must be written in
3. $\overline{BC} \cong$ $\overline{RS}$ 3. $\angle A \cong$ $\angle Q$ corresponding order)

3) Write six different congruence statements for the following triangles. Name the first triangle however you choose, but the second must be in corresponding order.

$\Delta ABC \cong \Delta$ QRS $\Delta ACB \cong \Delta$ QSR

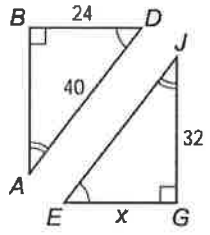
$\Delta BAC \cong \Delta$ RQS Δ CBA $\cong \Delta$ SRQ

$\Delta CAB \cong \Delta$ SQR Δ BCA $\cong \Delta$ RSQ

Complete each congruence statement if $\triangle DFH \cong \triangle PWZ$.

1. $\angle F \cong$ ∠W 2. $\angle P \cong$ ∠Z 3. $\overline{DH} \cong$ PZ 4. $\overline{ZW} \cong$ HF

Find the value of x for each pair of congruent triangles.

5. 

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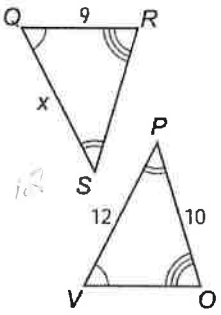
6. 

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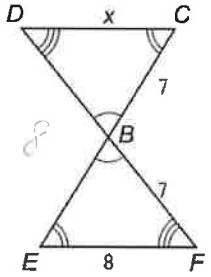
7. 

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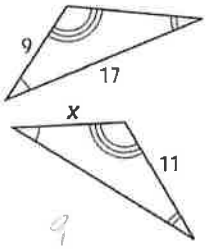
8. 

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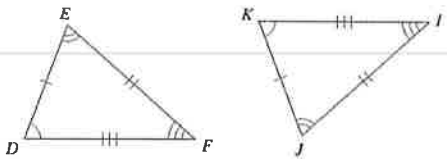
Complete each congruence statement.

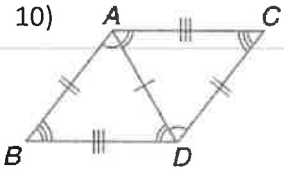
9) 

$\overline{DF} \cong$ KI $\angle E \cong$ ∠J

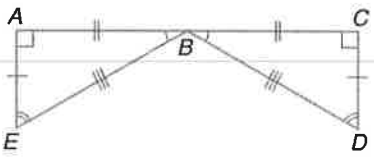
$\overline{EF} \cong$ JI $\angle F \cong$ ∠I

$\overline{ED} \cong$ JK $\angle D \cong$ ∠K

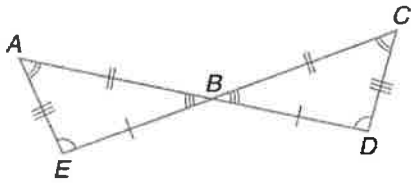
$\triangle DEF \cong \triangle$ KJI

10) 

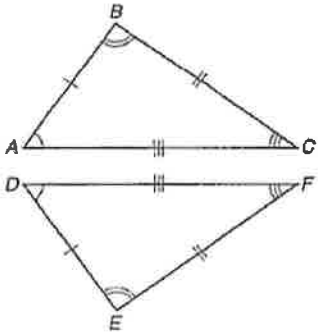
$\triangle BAD \cong \triangle$ CDA

11) 

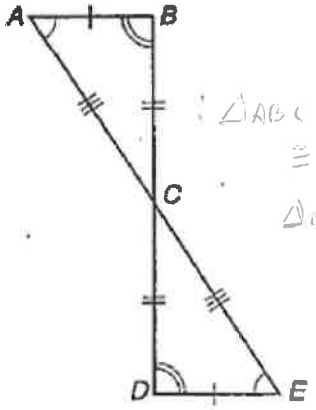
$\triangle BCD \cong \triangle$ BAE

11) 

△AEB ≅ △CDB

12) 

△ABC ≅ △DEF

13) 

△ABC ≅ △DEC

14) If $\triangle PRQ \cong \triangle YXZ$, $m\angle P = 63$, and $m\angle Q = 57$, find $m\angle X$. [hint: draw a diagram] ∠X = 60

15) **Given $\triangle ABC \cong \triangle DEF$, $AB = 15$, $BC = 20$, $AC = 25$, and $FE = 3x - 7$, find x.** x = 9

16) **Given $\triangle ABC \cong \triangle DEF$, $DE = 10$, $EF = 13$, $DF = 16$, and $AC = 4x - 8$, find x.** x = 6