ALBERT

Name _____ Date _____

Corresponding Parts of Congruent Triangles Worksheet

Geometry · Common Core HSG-CO.B.7

> Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.

Practice

Builds the skill step by step.

1. $\triangle ABC \cong \triangle DEF$ and $AB = 8$. What is DE?

2. $\triangle ABC \cong \triangle DEF$ and $m\angle B = 52°$. What is $m\angle E$?

3. $\triangle PQR \cong \triangle XYZ$. Which side corresponds to QR?

   A. XZ

   B. QR

   C. YZ

   D. XY

4. $\triangle JKL \cong \triangle MNO$. $m\angle J = 80°$ and $m\angle L = 35°$. What is $m\angle N$?

5. $\triangle ABC \cong \triangle DEF$. Which statement must be true?

   A. $BC \cong DF$

   B. $AB \cong EF$

   C. $\angle C \cong \angle D$

   D. $\angle C \cong \angle F$

6. $\triangle ABC \cong \triangle DEF$. $BC = 2x + 1$ and $EF = 15$. What is x?

7. $\triangle ABC \cong \triangle DEF$. The perimeter of $\triangle DEF$ is 30, $AB = 8$ and $BC = 12$. What is DF?

8. Two triangles are congruent. How many pairs of corresponding parts are congruent?

   A. 3

   B. 4

   C. 6

   D. 9

9. $\triangle RST \cong \triangle UVW$. $m\angle S = 3x°$ and $m\angle V = 75°$. What is x?

10. In two congruent triangles, A corresponds to E, B to F and C to D. Which congruence statement is correct?

    A. $\triangle ABC \cong \triangle EFD$

    B. $\triangle ABC \cong \triangle DEF$

    C. $\triangle ABC \cong \triangle FED$

    D. $\triangle ABC \cong \triangle EDF$

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On Level

Grade-level practice.

1. △ABC ≅ △DEF. AC = 3x − 4 and DF = 2x + 5. What is AC?

2. △ABC ≅ △DEF. m∠A = (2y + 10)° and m∠D = (4y − 30)°. What is m∠D?

3. △KLM ≅ △PQR. Which angle corresponds to ∠M?

   A. ∠P

   B. ∠R

   C. ∠Q

   D. ∠K

4. △ABC ≅ △DEF. AB = 6, BC = 8 and m∠B = 90°. What is DF?

5. △GHI ≅ △JKL. Which must be true?

   A. GI = JL

   B. GH = KL

   C. ∠G ≅ ∠K

   D. HI = JK

6. △ABC ≅ △XYZ. m∠A = 50° and m∠Y = 60°. What is m∠Z?

7. A rigid motion maps $\triangle ABC$ onto $\triangle DEF$. Explain why $AB = DE$ and $\angle A \cong \angle D$.

8. $\triangle ABC \cong \triangle DEF$. $AB = x + 4$ and $DE = 3x - 6$. What is x?

9. $\triangle ABC \cong \triangle ADC$, and the triangles share side AC. Which must be true?

   A. $\angle ABC \cong \angle ACD$

   B. $AB \cong CD$

   C. $BC \cong AD$

   D. $\angle BAC \cong \angle DAC$

10. $\triangle PQR \cong \triangle STU$. $PQ = 9$, $QR = 12$ and $PR = 15$. What is the perimeter of $\triangle STU$?

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Challenge

Multi-step and word problems that stretch it.

1. △ABC ≅ △DEF. AB = 2x + y, DE = 13, BC = x + 2y and EF = 11. What is x?

2. △ABC ≅ △DEF ≅ △GHI. m∠A = 40° and m∠E = 75°. What is m∠I?

3. Two triangles have all three pairs of corresponding angles congruent. Must they be congruent?

   A. No, because triangles can't have equal angles.

   B. Yes, if they are right triangles.

   C. No. One could be a larger copy of the other.

   D. Yes, always.

4. In parallelogram ABCD, diagonal AC splits it so that △ABC ≅ △CDA. AB = 7 and BC = 4. What is CD?

5. △ABC ≅ △DEF. The area of △ABC is 24 square units. What is the area of △DEF?

6. $\triangle ABC \cong \triangle ADC$, where B and D are on opposite sides of AC. Explain why ray AC bisects $\angle BAD$.

7. $\triangle ABC \cong \triangle DEF$. $AB = x^2$ and $DE = 4x - 4$. What is AB?

8. $\triangle ABC \cong \triangle DEF$. Which statement is NOT a correct way to write this congruence?

   A. $\triangle BAC \cong \triangle DFE$

   B. $\triangle BAC \cong \triangle EDF$

   C. $\triangle CBA \cong \triangle FED$

   D. $\triangle ACB \cong \triangle DFE$

9. In isosceles $\triangle ABC$, $AB = AC$ and D is the midpoint of BC, so $\triangle ABD \cong \triangle ACD$. $m\angle BAC = 50°$. What is $m\angle BAD$?

10. Two triangles are congruent. The angles of one measure $2x°$, $3x°$ and $4x°$. What is the largest angle of the other triangle?