



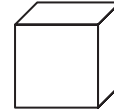
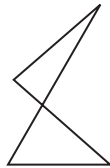
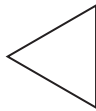
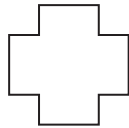
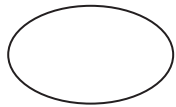
Vocabulary

Review

- Underline the correct word to complete the sentence.

A *polygon* is a two-dimensional figure with two / three or more segments that meet exactly at their endpoints.

- Cross out the figure(s) that are NOT *polygons*.



Vocabulary Builder

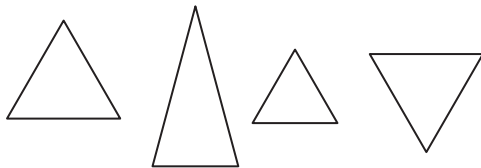
congruent (adjective) kahng GROO unt

Main Idea: **Congruent** figures have the same size and shape.

Related Word: congruence (noun)

Use Your Vocabulary

- Circle the triangles that appear to be *congruent*.



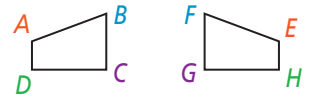
Write T for *true* or F for *false*.

- 4.** *Congruent* angles have different measures.
- 5.** A prism and its net are *congruent* figures.
- 6.** The corresponding sides of *congruent* figures have the same measure.

Take note

Key Concept Congruent Figures

Congruent polygons have congruent corresponding parts—their matching sides and angles. When you name congruent polygons, you must list corresponding vertices in the same order.



$$ABCD \cong EFGH$$

7. Use the figures at the right to complete each congruence statement.

$\overline{AB} \cong$ <input type="text"/>	$\overline{BC} \cong$ <input type="text"/>	$\overline{CD} \cong$ <input type="text"/>	$\overline{DA} \cong$ <input type="text"/>
$\angle A \cong$ <input type="text"/>	$\angle B \cong$ <input type="text"/>	$\angle C \cong$ <input type="text"/>	$\angle D \cong$ <input type="text"/>



Problem 1 Using Congruent Parts

Got It? If $\triangle WYS \cong \triangle MKV$, what are the congruent corresponding parts?

8. Use the diagram at the right.
Draw an arrow from each vertex of the first triangle to the corresponding vertex of the second triangle.

$$\triangle WYS \cong \triangle MKV$$

9. Use the diagram from Exercise 8 to complete each congruence statement.

Sides	$\overline{WY} \cong$ <input type="text"/>	$\overline{YS} \cong$ <input type="text"/>	$\overline{WS} \cong$ <input type="text"/>
Angles	$\angle W \cong$ <input type="text"/>	$\angle Y \cong$ <input type="text"/>	$\angle S \cong$ <input type="text"/>



Problem 2 Finding Congruent Parts

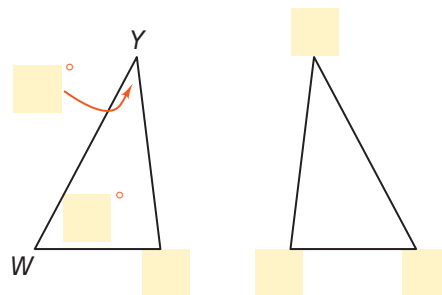
Got It? Suppose that $\triangle WYS \cong \triangle MKV$. If $m\angle W = 62$ and $m\angle Y = 35$, what is $m\angle V$? Explain.

Use the congruent triangles at the right.

10. Use the given information to label the triangles. Remember to write corresponding vertices in order.

11. Complete each congruence statement.

$\angle W \cong$ <input type="text"/>
$\angle Y \cong$ <input type="text"/>
$\angle S \cong$ <input type="text"/>



12. Use the Triangle Angle-Sum theorem.

$$m\angle S + m\text{ } + m\text{ } = 180, \text{ so } m\angle S = 180 - (\text{ } + \text{ }), \text{ or } \text{ }.$$

13. Complete.

Since $\angle S \cong$ and $m\angle S =$, $m\angle V =$.

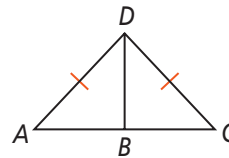


Problem 3 Finding Congruent Triangles

Got It? Is $\triangle ABD \cong \triangle CBD$? Justify your answer.

14. Underline the correct word to complete the sentence.

To prove two triangles congruent, show that all adjacent / corresponding parts are congruent.



15. Circle the name(s) for $\triangle ACD$.

acute isosceles right scalene

16. Cross out the congruence statements that are NOT supported by the information in the figure.

$$\overline{AD} \cong \overline{CD}$$

$$\overline{BD} \cong \overline{BD}$$

$$\overline{AB} \cong \overline{CB}$$

$$\angle A \cong \angle C$$

$$\angle ABD \cong \angle CBD$$

$$\angle ADB \cong \angle CDB$$

17. You need _____ congruence statements to prove two triangles congruent, so you can / cannot prove that $\triangle ABD \cong \triangle CBD$.

take note

Theorem 4-1 Third Angles Theorem

Theorem

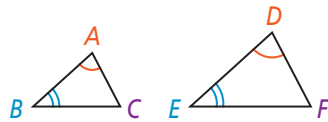
If two angles of one triangle are congruent to two angles of another triangle, then the third angles are congruent.

If ...

$$\angle A \cong \angle D \text{ and } \angle B \cong \angle E$$

Then ...

$$\angle C \cong \angle F$$



Use $\triangle ABC$ and $\triangle DEF$ above.

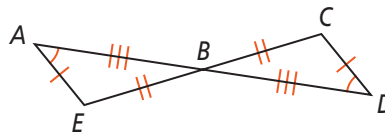
18. If $m\angle A = 74$, then $m\angle D =$.
19. If $m\angle B = 44$, then $m\angle E =$.
20. If $m\angle C = 62$, then $m\angle F =$.



Problem 4 Proving Triangles Congruent

Got It? Given: $\angle A \cong \angle D$, $\overline{AE} \cong \overline{DC}$,
 $\overline{EB} \cong \overline{CB}$, $\overline{BA} \cong \overline{BD}$

Prove: $\triangle AEB \cong \triangle DCB$



21. You are given four pairs of congruent parts. Circle the additional information you need to prove the triangles congruent.

A third pair of congruent sides

A second pair of congruent sides

A third pair of congruent angles

22. Complete the steps of the proof.

1) $\overline{AE} \cong \square$, $\overline{EB} \cong \square$, $\overline{BA} \cong \square$

1) Given

2) $\angle A \cong \square$

2) Given

3) $\angle ABE \cong \square$

3) Vertical angles are congruent.

4) $\angle E \cong \square$

4) Third Angles Theorem

5) $\triangle AEB \cong \square$

5) Definition of \cong triangles



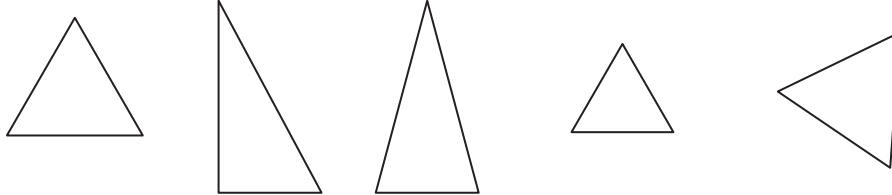
Lesson Check • Do you UNDERSTAND?

If each angle in one triangle is congruent to its corresponding angle in another triangle, are the two triangles congruent? Explain.

23. Underline the correct word to complete the sentence.

To disprove a conjecture, you need one / two / many counterexample(s).

24. An equilateral triangle has three congruent sides and three 60° angles. Circle the equilateral triangles below.



25. Use your answers to Exercise 24 to answer the question.

Three horizontal lines for writing an answer.



Math Success

Check off the vocabulary words that you understand.

congruent

polygons

Rate how well you can *identify congruent polygons*.

