Warm-up

• x-intercept
• zeros
• roots

20. Which equation has exactly one real solution?

A. $4x^2 - 12x - 9 = 0$ B. $4x^2 + 12x + 9 = 0$

C. $4x^2 - 6x - 9 = 0$ D. $4x^2 + 6x + 9 = 0$

$x_1 = .64$ $x_2 = .77$

$y_1 = 8.2$ $y_2 = ?$

$.64^2 \cdot 8.2 = .77^2 y_2$

26. The force, F, acting on a charged object varies inversely to the square of its distance, r, from another charged object. When the two objects are 0.64 meter apart, the force acting on them is 8.2 Newtons. *Approximately* how much force would the object feel if it is at a distance of 0.77 meter from the other object?

A. 1.7 Newtons B. 5.7 Newtons

C. 11.9 Newtons D. 12.9 Newtons

Check In!

Speed Research:

In 13 minutes, research and define (or draw an example of)...

Corresponding sides	Corresponding angles	Congruency
Reflexive property	Midpoint	Perpendicular bisector
bisector (angle bisector)	vertical angles	Sum of interior angles of a triange

Congruent Triangles and Congruent Parts

Introduction

If a rigid motion or a series of rigid motions, including translations, rotations, or reflections, is performed on a triangle, then the transformed triangle is congruent to the original. When two triangles are congruent, the corresponding angles have the same measures and the corresponding sides have the same lengths. It is possible to determine whether triangles are congruent based on the angle measures and lengths of the sides of the triangles.

Key Concepts

- To determine whether two triangles are congruent, you must observe the angle measures and side lengths of the triangles.
- When a triangle is transformed by a series of rigid motions, the angles are images of each other and are called corresponding angles.
- Corresponding angles are a pair of angles in a similar position.

Key Concepts, *continued*

- If two triangles are congruent, then any pair of corresponding angles is also congruent.
- When a triangle is transformed by a series of rigid motions, the sides are also images of each other and are called corresponding sides.
- Corresponding sides are the sides of two figures that lie in the same position relative to the figure.
- If two triangles are congruent, then any pair of corresponding sides is also congruent.

Key Concepts, *continued*

- The corresponding angles and sides can be determined by the order of the letters.
- If $\triangle ABC$ is congruent to $\triangle DEF$, the angles of the two triangles correspond in the same order as they are named.
- Use the symbol $\rightarrow$ to show that two parts are corresponding.

Angle $A \rightarrow$ Angle D; they are equivalent.
Angle $B \rightarrow$ Angle E; they are equivalent.
Angle $C \rightarrow$ Angle F; they are equivalent.

Key Concepts, *continued*

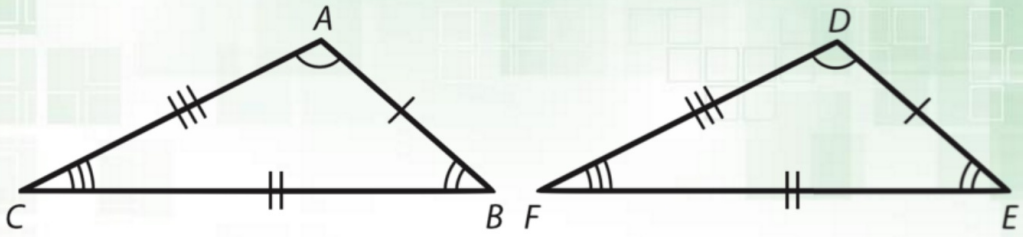
- The corresponding angles are used to name the corresponding sides.

$\overline{AB} \rightarrow \overline{DE}$; they are equivalent.
$\overline{BC} \rightarrow \overline{EF}$; they are equivalent.
$\overline{AC} \rightarrow \overline{DF}$; they are equivalent.

Key Concepts, *continued*

- Observe the diagrams of $\triangle ABC$ and $\triangle DEF$.

$\triangle ABC \cong \triangle DEF$



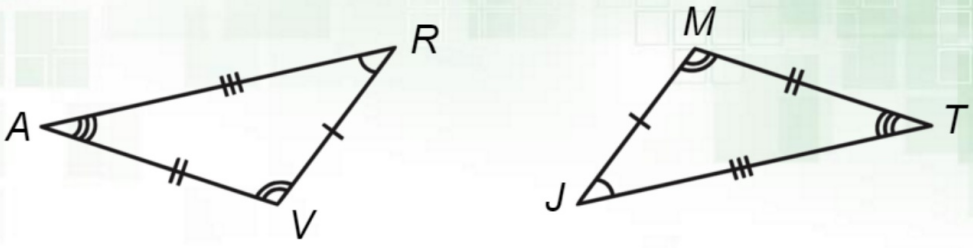
$\angle A \cong \angle D$
$\angle B \cong \angle E$
$\angle C \cong \angle F$

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

Guided Practice

Example 1

Use corresponding parts to identify the congruent triangles.



Guided Practice

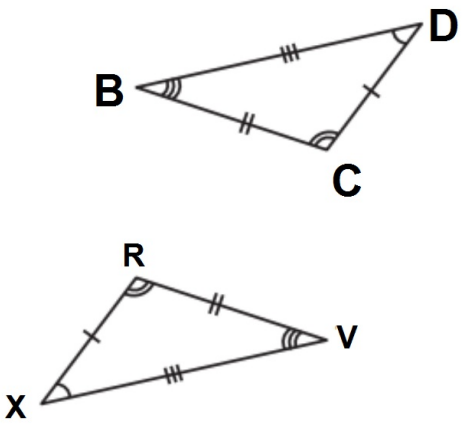
Example 2

$\triangle BDF \cong \triangle HJL$

Name the corresponding angles and sides of the congruent triangles.

Example 1

Use corresponding parts to identify the congruent triangles.



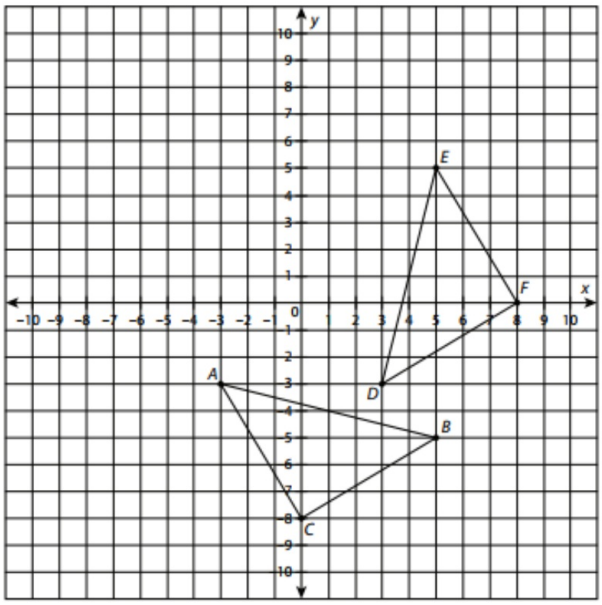
Example 2

$\triangle DEF \cong \triangle TAZ$

Name the corresponding angles and sides of the congruent triangles.

Example 4

Use coordinates and a protractor to determine whether the triangles are congruent. If they are, name the congruent triangles and corresponding angles and sides.



Key Concepts, *continued*

- Congruent triangles have three pairs of corresponding angles and three pairs of corresponding sides, for a total of six pairs of corresponding parts.
- If two or more triangles are proven congruent, then all of their corresponding parts are congruent as well. This postulate is known as **Corresponding Parts of Congruent Triangles are Congruent (CPCTC)**. A **postulate** is a true statement that does not require a proof.

INDEPENDENT PRACTICE!

1. Work with a partner.

2. You have till rest of the class to finish the worksheet.