Use the following to review for you test. Work the Practice Problems on a separate sheet of paper.

<table>
<tr><th>Key Standards</th><th>Study Tips</th><th>Practice Questions</th></tr>
<tr>
<td>Parallel Lines and Transversals</td>
<td>

- Congruent angles have **equal** measures

If two parallel lines are cut by a transversal then two pairs of:

- **Corresponding angles** are **congruent**
- **Alternate interior** angles are **congruent**
- **Alternate exterior** angles are **congruent**
- **Consecutive** (same-side) angles are **supplementary**

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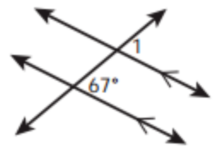
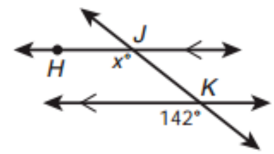
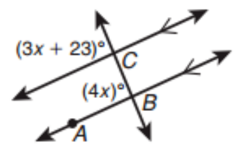
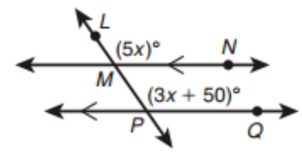
1. **Find each angle measure.**





A m∠1 ________ **B** m∠HJK ________





C m∠ABC ________ **D** m∠MPQ ________

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<td>Identifying Congruent Parts</td>
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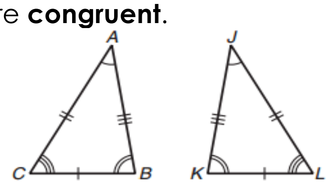
Triangles are **congruent** if they have the same **size** and **shape**. Their corresponding parts, the angles and sides that are in the same positions are **congruent**.



$\triangle ABC \cong \triangle JKL$

<table>
<tr><th colspan="2">Corresponding Parts</th></tr>
<tr><th>Congruent Angles</th><th>Congruent Sides</th></tr>
<tr><td>$\angle A \cong \angle J$
$\angle B \cong \angle K$
$\angle C \cong \angle L$</td><td>$\overline{AB} \cong \overline{JK}$
$\overline{BC} \cong \overline{KL}$
$\overline{CA} \cong \overline{LJ}$</td></tr>
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To identify corresponding parts of congruent triangles, look at the order of the vertices in the **congruence statement**.

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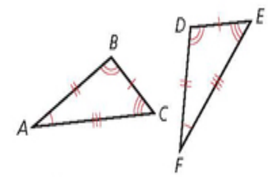
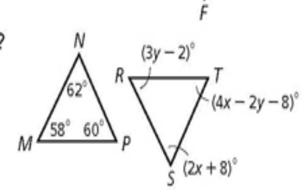
2.

A Which congruence statement correctly indicates that the two given triangles are congruent?



(A) $\triangle ABC \cong \triangle EFD$ (C) $\triangle ABC \cong \triangle DEF$
(B) $\triangle ABC \cong \triangle FDE$ (D) $\triangle ABC \cong \triangle FED$

B $\triangle MNP \cong \triangle RST$. What are the values of x and y?

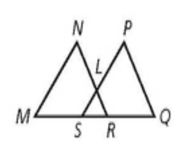


(F) $x = 26, y = 21\frac{1}{3}$ (H) $x = 25, y = 20\frac{2}{3}$
(G) $x = 27, y = 20$ (J) $x = 30\frac{1}{3}, y = 16\frac{2}{3}$

C $\triangle ABC \cong \triangle XYZ$. $m\angle A = 47.1°$, and $m\angle C = 13.8°$. Find $m\angle Y$.

(A) 13.8 (C) 76.2
(B) 42.9 (D) 119.1

D $\triangle MNR \cong \triangle SPQ$, $NL = 18$, $SP = 33$, $SR = 10$, $RQ = 24$, and $QP = 30$. What is the perimeter of $\triangle MNR$?



(F) 79 (H) 87
(G) 85 (J) 97

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<td>SSS, SAS, AAS, ASA, and HL</td>
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Ways to Prove Triangles Congruent

- **SSS** (Side, Side, Side) three sides of one triangle
- **SAS** (Side, Angle, Side) two sides and the included angle
- **ASA** (Angle, Side, Angle) two angles and the included side
- **AAS** (Angle, Angle, Side) two angles and the non-

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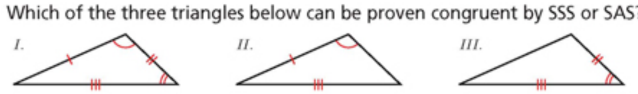
3.

A Which of the three triangles below can be proven congruent by SSS or SAS?

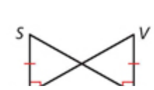


(A) I and II (B) II and III (C) I and III (D) I, II, and III

B Jacob wants to prove that $\triangle FGH \cong \triangle JKL$ using SAS. He knows that $\overline{FG} \cong \overline{JK}$ and $\overline{FH} \cong \overline{JL}$. What additional piece of information does he need?

(A) $\angle F \cong \angle J$ (C) $\angle H \cong \angle L$
(B) $\angle G \cong \angle K$ (D) $\angle F \cong \angle G$

C Which postulate or theorem justifies the congruence statement $\triangle STU \cong \triangle VUT$?



(F) ASA (H) HL

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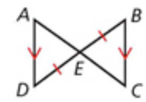
hypotenuse and a leg of one right triangle
Each are congruent to the corresponding parts of the other

D Which of the following congruence statements is true?

Ⓐ $\angle A \cong \angle B$ Ⓒ $\triangle AED \cong \triangle CEB$
Ⓑ $\overline{CE} \cong \overline{DE}$ Ⓓ $\triangle AED \cong \triangle BEC$



Proofs

State what is given first, and mark your picture!

STEP 1: Write down the givens

STEP 2: Make any marks that you know are congruent (reflexive, vertical, alternate interior angles, etc.)

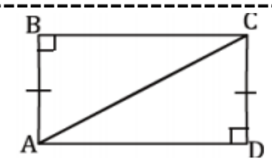
STEP 3: The last Statement will always be showing the Triangles are congruent (SSS, SAS, AAS, ASA, HL)

If the last statement is congruent parts then use **CPCTC** – **C**ongruent **P**arts of **C**ongruent **T**riangles are **C**ongruent

4. Complete each proof.

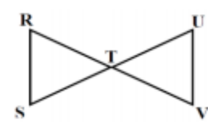
Choice Bank: SSS SAS ASA AAS HL CPCTC Vertical Angles are ≅
Reflexive Property Alternate Interior Angles ≅ Right Angles are ≅
Transitive Property Definition of a Midpoint Given

A Given: $\overline{AB} \cong \overline{DC}$
Prove: $\Delta ABC \cong \Delta CDA$



Statements	Reasons
1. $\overline{AB} \cong \overline{DC}$	1.
2. $\overline{AC} \cong \overline{AC}$	2.
3. $\angle ABC \cong \angle CDA$	3.
4. $\Delta ABC \cong \Delta CDA$	4.

B Given: $\overline{RT} \cong \overline{TV}$, $\overline{ST} \cong \overline{TU}$
Prove: $\angle TSR \cong \angle TUV$



Statements	Reasons
1. $\overline{RT} \cong \overline{TV}$	1.
2.	2. Given
3. $\angle RTS \cong \angle VTU$	3.
4. $\Delta RTS \cong \Delta VTU$	4.
5. $\angle TSR \cong \angle TUV$	5.

Identifying Constructions

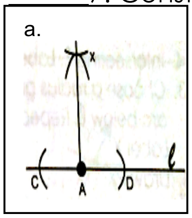
Constructions are the drawing of various shapes using only a compass and ruler

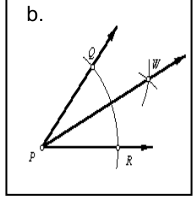
Recognize marking to construct the following figures:

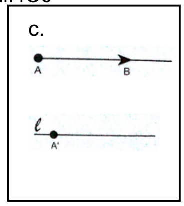
- Bisecting a segment
- Constructing a circle
- Copying an Angle
- Copying a Segment
- Perpendicular Bisector
- Angle Bisector
- Parallel Lines
- Perpendicular Lines
- Inscribed Polygons (equilateral triangle, square, hexagon)

5. Match the following constructions.

______1. Constructing Congruent Segments
______2. Constructing Perpendicular Bisectors
______3. Constructing Perpendiculars from Point on Line
______4. Construct Perpendiculars from point not on Line
______5. Constructing Congruent Angles
______6. Constructing Angle Bisectors
______7. Constructing Parallel Lines

a.


b.


c.


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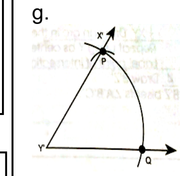
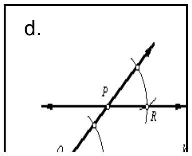
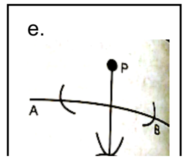
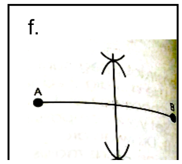
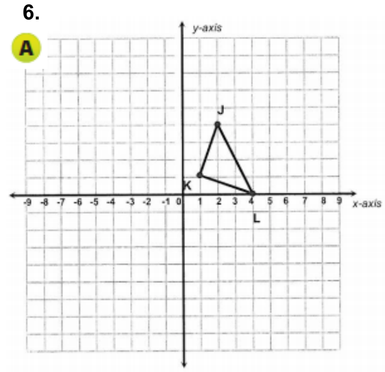
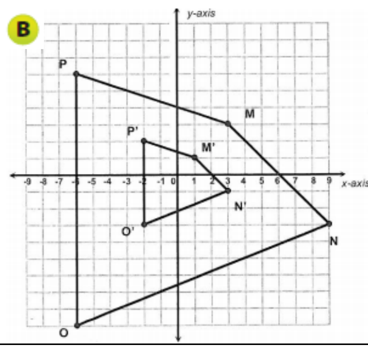
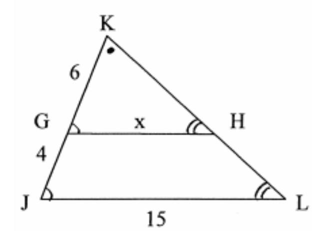
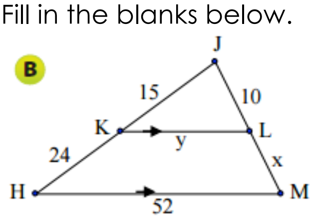
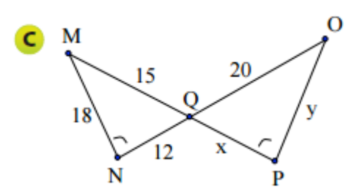


d.


e.


f.


Dilations	**Dilation** • Another type of transformation • Change in the size • Requires a center point and scale factor If a s**cale factor** is: • Greater than 1, then your figure is an **enlargement** • Between 0 and 1, then your figure is an **reduction**	**6.** **A**  Graph the dilated image of triangle JKL using a scale factor of 2 and (0,0) as the center of dilation. J: ________ J': ________ K: ________ K': ________ L: ________ L': ________ **B**  Describe the dilation of quadrilateral MNOP, using the origin as the center. ________________________________ ________________________________
Similarity	Similar Polygons are two polygons are similar if and only if: • Corresponding angles are **congruent** • Corresponding sides are **proportional** Similar means same shape, **not** necessarily the same size. **Similarity Ratio** is the ratio of lengths of corresponding sides of two similar polygons	**7.** Use the given diagram to **i.) identify corresponding equal angles** **ii.) write a similarity statement between two of the triangles** **iii.) write a proportion** **iv.) solve for the indicated variables using the proportion** **A**  Fill in the blanks below. **B**  ΔJKL ~ Δ ________ Why? x = __________ y = __________ **C**  ΔQMN ~ Δ ________ Why? x = __________ y = __________