

Triangles: Part 1 Review

Name KEY!

Secondary Math 2 Honors

Period Date

Chapter 10

Form G

Lessons 10-1 through 10-4

Do you know HOW?

1. The lengths of two sides of a polygon are in the ratio 2 : 3. Write expressions for the measures of the two sides in terms of the variable x .

side 1: $2x$
side 2: $3x$

2. $\triangle HJK \sim \triangle RST$. Complete each statement. $\angle K \cong \angle T$ and $\frac{JK}{ST} = \frac{HV}{RT}$

Solve each proportion.

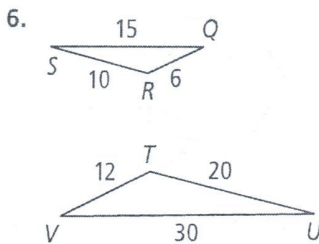
3. $\frac{z}{15} = \frac{45}{75}$ **$z = 9$**

4. $\frac{5}{8} = \frac{x+2}{5}$ **$x = 9/8$**

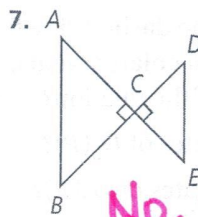
5. To the nearest inch, a door is 75 in. tall and 35 in. wide. What is the ratio of the width to the height?

$35:75$ or $7:15$

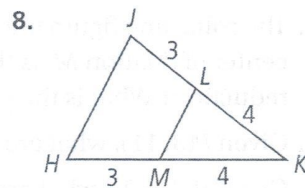
In Exercises 6-9, are the triangles similar? If yes, write a similarity statement and explain how you know they are similar. If not, explain.



YES, $\triangle QSR \sim \triangle VUT$ by SSS ~



No, not enough info



YES, $\triangle HJK \sim \triangle MLK$ by SAS ~

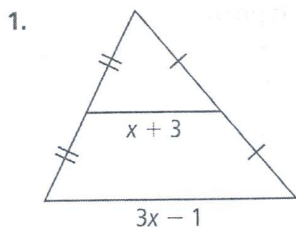
Chapter 8

Form G

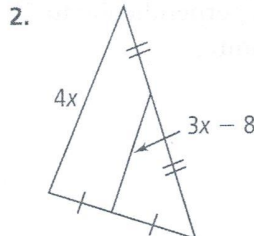
Lessons 8-1

Do you know HOW?

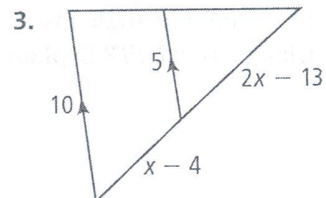
Find the value of x .



$x = 7$



$x = 8$



$x = 9$

Chapter 10

Form G

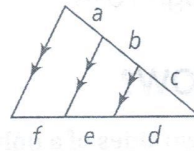
Lessons 10-5 through 10-7

Do you know HOW?

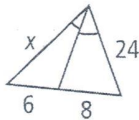
Use the figure at the right to complete each proportion.

1. $\frac{a}{b} = \frac{\boxed{f}}{e}$

2. $\frac{c}{a+b} = \frac{\boxed{d}}{e+f}$



3. What is the value of x in the figure?

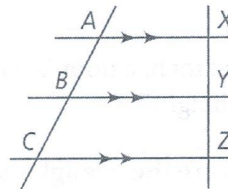


$x = 18$

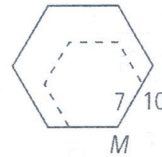
Use the figure at the right to complete each proportion.

4. $\frac{AB}{AC} = \frac{\boxed{XY}}{XZ}$

5. $\frac{AB}{XY} = \frac{BC}{\boxed{YZ}}$



6. The solid-line figure is a dilation of the dashed-line figure with center of dilation M . Is the dilation an enlargement or a reduction? What is the scale factor of the dilation?



7. Given $P(3, 11)$, what are the coordinates of $D_3(P)$?

$(9, 33)$

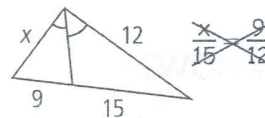
8. Given $P(2, -4)$, what are the coordinates of $D_4(P)$?

$(8, -16)$

Do you UNDERSTAND?

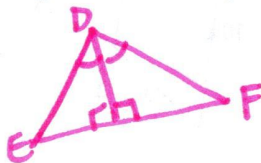
9. **Compare and Contrast** How are the Triangle-Angle-Bisector-Theorem and Corollary 2 to Theorem 7-3 alike? How are they different?

10. **Error Analysis** A classmate writes an incorrect proportion to find x . Explain and correct the error.



$\frac{x}{12} = \frac{9}{15}$

11. In $\triangle DEF$, the angle bisector of $\angle D$ is perpendicular to \overline{EF} . What type of triangle is $\triangle DEF$? Explain your reasoning.



it makes 2 rt. angles $\therefore \angle E \cong \angle F$
So it must be an isosceles triangle.

Chapter 10

Form G

Do you know HOW?

Algebra Solve each proportion.

1. $\frac{y}{4} = \frac{15}{20}$

$y = 3$

2. $\frac{x}{x+5} = \frac{5}{7}$

$x = 12.5$

3. Write a similarity statement for the two figures in the coordinate grid.

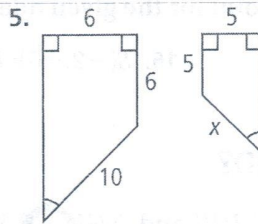


$\Delta TUV \sim \Delta XYZ$

Algebra The polygons are similar. Find the value of each variable.

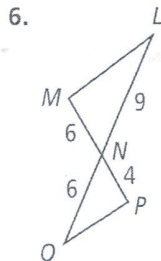


$x = 18$

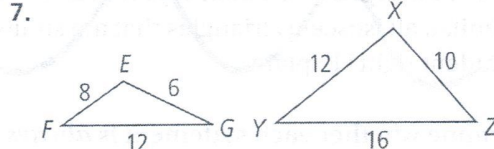


$x = \frac{25}{3}$

Determine whether the triangles are similar. If so, write a similarity statement and name the postulate or theorem you used. If not, explain.



YES, $\Delta LMN \sim \Delta OPN$
by SAS ~



No, the ratios are not equal

Find the geometric mean of each pair of numbers.

8. 8 and 12

9. 20 and 6

Chapter 10

Form G

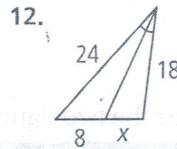
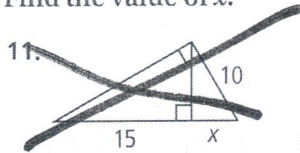
10. A pie shop sold a total of 117 pies one day. The pies were apple, cherry, and blueberry. The ratio of apple pies sold to cherry pies to blueberry pies was 6 : 2 : 5. How many cherry pies were sold?

$6x + 2x + 5x = 117$
 $x = 9$

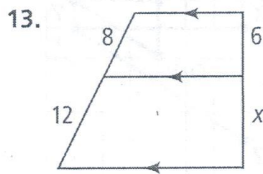
cherry $\rightarrow 2x$
 $\therefore 2(9)$

= 18 pies

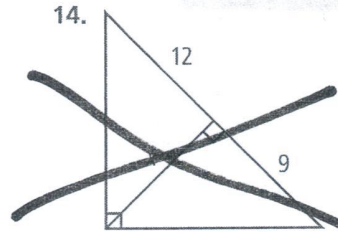
Find the value of x .



$x = 6$



$x = 9$



Find the image of each point for the given dilation.

15. $L(6, 4); D_{1.2}(L)$
 $(7.2, 4.8)$

16. $S(-2, -6); D_{0.25}(S)$
 $(-0.5, -1.5)$

17. $W(-3, 2); D_5(W)$
 $(-15, 10)$

Do you UNDERSTAND?

18. Reasoning $\triangle ABC \sim \triangle HJK$ and $\triangle HJK \sim \triangle XYZ$. Furthermore, the ratio between the sides of $\triangle ABC$ and $\triangle HJK$ is $a : b$. Finally, the ratio of the sides between $\triangle HJK$ and $\triangle XYZ$ is $b : c$. What can you conclude about $\triangle ABC$ and $\triangle XYZ$? Explain.

19. Error Analysis A student says that since all isosceles right triangles are similar, all isosceles triangles that are similar must be right triangles. Is the student right? Explain.

Determine whether each statement is *always*, *sometimes*, or *never* true.

20. Two equilateral triangles are similar. **Always**
21. The angle bisector of a triangle divides the triangle into two similar triangles. **Sometimes**
22. A rectangle is similar to a rhombus. **Sometimes**

Chapter 7

Form K

Lessons 7-1 through 7-4

Do you know HOW?

Complete the following statements.

1. Given: $\triangle FGH \cong \triangle WAX$

a. $\overline{GH} \cong$? **\overline{AX}**

b. $\angle W \cong$? **$\angle F$**

2. Given: $BIKE \cong PATH$

a. $\angle T \cong$? **$\angle K$**

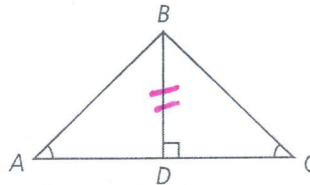
b. $THPA \cong$? **$KEBI$**

Use the diagram at the right. Tell why each statement is true.

3. $m\angle ADB = 90$ **suppl. angles**

4. $\overline{BD} \cong \overline{BD}$ **reflexive**

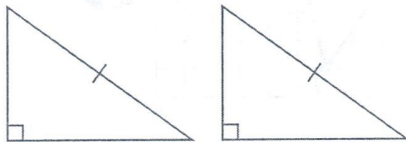
5. $\triangle ADB \cong \triangle CDB$ **AAS**



6. In $\triangle ABC$, which side is included between $\angle B$ and $\angle C$? **\overline{BC}**

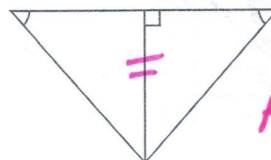
State the postulate or theorem you can use to prove each pair of triangles congruent. If the triangles cannot be proven congruent, write *not enough information*.

7.



Not enough info

8.



AAS

Do you UNDERSTAND?

9. Reasoning If two triangles are congruent, all their corresponding parts are congruent. Write the converse of this statement. Is the converse true? Explain.

Converse: If all corresp. parts of two triangles are \cong , then the triangles are \cong

**YES \rightarrow true!
(SSS, SAS, AAS, ASA)**

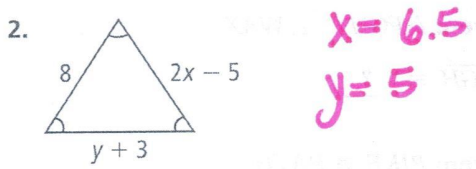
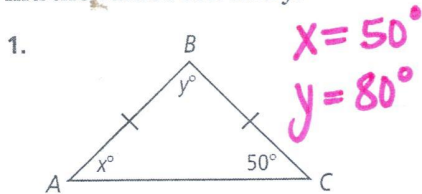
Chapter 7

Form G

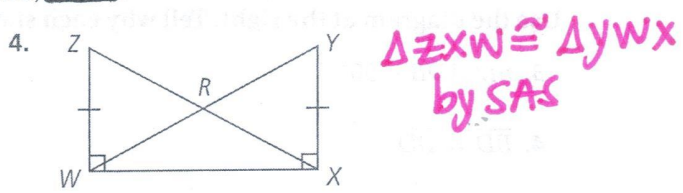
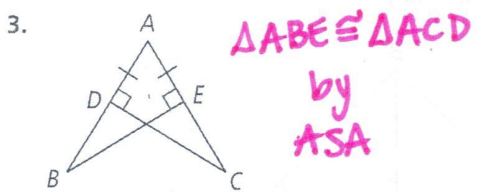
Lessons 7-5 through 7-8

Do you know HOW?

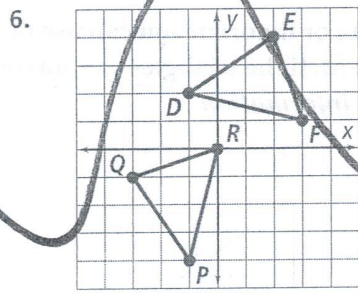
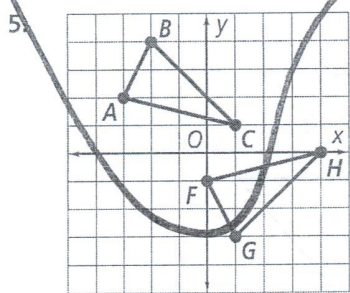
Find the values of x and y .



Name a pair of overlapping congruent triangles in each diagram. State whether the triangles are congruent by SSS, SAS, ASA, AAS, _____



Write a congruence statement for the two figures in each coordinate grid. Then write a congruence transformation that maps one figure to the other.

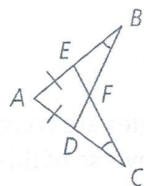


Do you UNDERSTAND?

7. Reasoning Complete the proof by filling in the missing statements and reasons.

Given: $\overline{AE} \cong \overline{AD}$, $\angle B \cong \angle C$

Prove: $\overline{EB} \cong \overline{DC}$



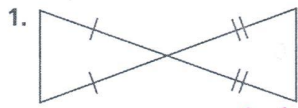
Statements	Reasons
1) $\overline{AE} \cong \overline{AD}$, $\angle B \cong \angle C$	1) ? GIVEN
2) ? $\angle A \cong \angle A$	2) Reflexive Property of Congruence
3) $\triangle ABD \cong \triangle ACE$	3) ? AAS
4) $\overline{AB} \cong \overline{AC}$	4) ? CPCTC CPCTC
5) ? $\overline{EB} \cong \overline{DC}$	5) Segment Addition Postulate

Chapter 7

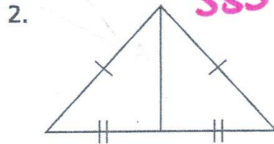
Form G

Do you know HOW?

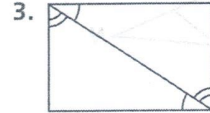
State the postulate or theorem you would use to prove each pair of triangles congruent. If the triangles cannot be proven congruent, write *not enough information*.



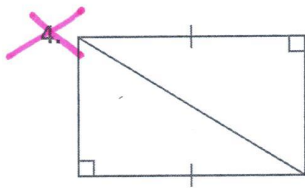
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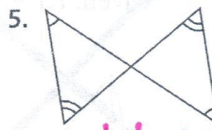
SSS



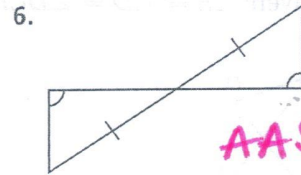
ASA



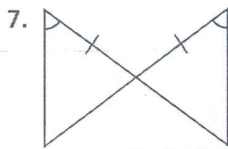
HL



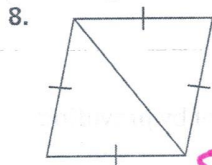
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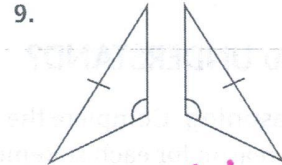
AAS



ASA

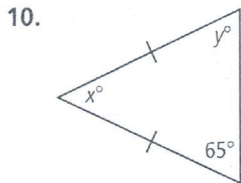


SSS

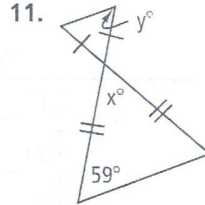


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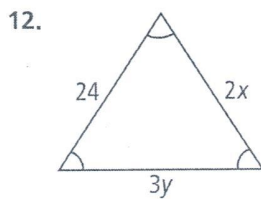
Find the values of x and y .



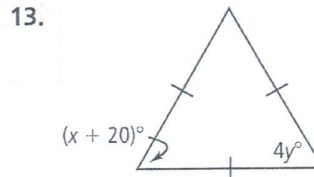
$x = 50^\circ$
 $y = 65^\circ$



$x = 62^\circ$
 $y = 59^\circ$



$x = 12$
 $y = 8$



$x = 40$
 $y = 15$

14. $\triangle CGI \cong \triangle MPR$. Name all of the pairs of corresponding congruent parts.

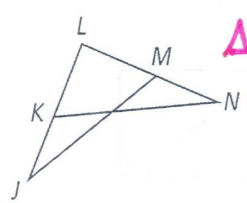
$\angle C \cong \angle M$ $\overline{CG} \cong \overline{MP}$
 $\angle G \cong \angle P$ $\overline{GI} \cong \overline{PR}$
 $\angle I \cong \angle R$ $\overline{CI} \cong \overline{MR}$

Chapter 7

Form G

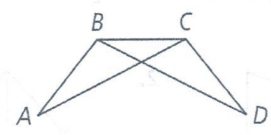
Name a pair of overlapping congruent triangles in each diagram. State whether the triangles are congruent by SSS, SAS, ASA, AAS, _____

15. Given: $\overline{LM} \cong \overline{LK}$; $\overline{LN} \cong \overline{LJ}$



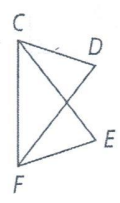
$\triangle LMN \cong \triangle LKJ$
by SAS

16. Given: $\angle ABC \cong \angle DCB$; $\angle DBC \cong \angle ACB$



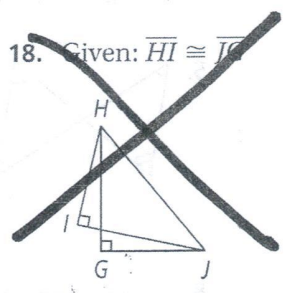
$\triangle ABC \cong \triangle DCB$
by ASA

17. Given: $\angle E \cong \angle D \cong \angle DCF \cong \angle EFC$



$\triangle CDE \cong \triangle CFE$
by AAS

18. Given: $\overline{HI} \cong \overline{IG}$

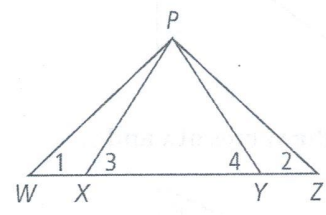


Do you UNDERSTAND?

19. Reasoning Complete the following proof by providing the reason for each statement.

Given: $\angle 1 \cong \angle 2$; $\overline{WX} \cong \overline{ZY}$

Prove: $\angle 3 \cong \angle 4$



Statements	Reasons
1) $\angle 1 \cong \angle 2$; $\overline{WX} \cong \overline{ZY}$	1) ? Given
2) $\overline{WP} \cong \overline{YP}$	2) ? Conv. of Isos. Tri Theorem
3) $\triangle WXP \cong \triangle ZYP$	3) ? SAS
4) $\overline{XP} \cong \overline{YP}$	4) ? CPCTC
5) $\angle 3 \cong \angle 4$	5) ? Isos. Tri Theorem

20. Coordinate Geometry $\triangle ABC$ has vertices at $A(0, 5)$, $B(4, 4)$, and $C(-1, 0)$. Graph the image $T_{\langle -1, -2 \rangle}(\triangle ABC)$.