

August 27, 2018

What does triangle congruency mean?

Find an explanation and a picture, using technology.

Aug 24-10:10 AM

Let's look at the triangle sum theorem...


Geogebra, interior triangle sum

Geogebra, triangle sum theorem

What is the triangle sum theorem?

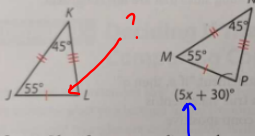
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Now the triangle sum theorem using paper.....



Aug 24-10:44 AM

Example 2 Find the value of the variable that results in congruent triangles.



Congruent
 $\angle K \cong \angle N \cong 45^\circ$
 $\angle J \cong \angle M = 55^\circ$
 $\angle L \cong \angle P$

Step 1 Identify corresponding angles.

$\angle M$ corresponds to $\angle J$, because they have the same measure and they are formed by congruent corresponding sides. Similarly, $\angle N$ corresponds to $\angle K$. So, $\angle P$ corresponds to $\angle L$.

$$55 + 45 + \angle L = 180$$

$$100 + \angle L = 180$$

$$-100 \quad -100$$

$$\angle L = 80^\circ$$

$$80 = 5x + 30$$

$$-30 \quad -30$$

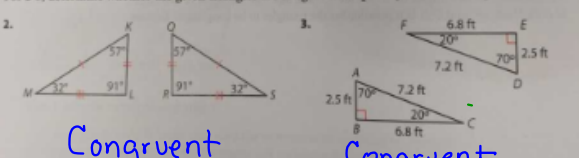
$$50 = 5x$$

$$\frac{50}{5} = \frac{5x}{5}$$

$$10 = x$$

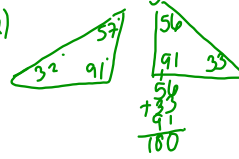
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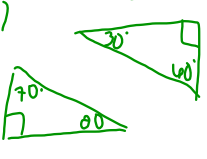
For 2-5, determine whether the given triangles are congruent. Explain your reasoning.



Congruent look @ sides →
 look @ angles →

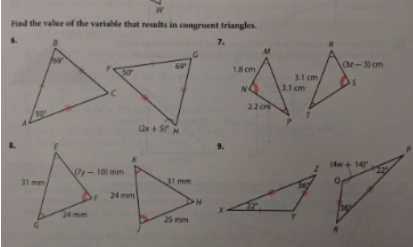
Not Congruent Not Congruent

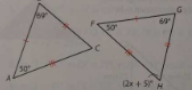
2)  $\frac{57}{91} \frac{91}{32}$

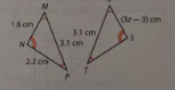
3) 

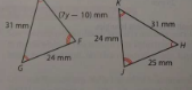
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Find the value of the variable that results in congruent triangles.



6. 

7. 

8. 

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Triangle Sum Theorem
Practice Problems
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Find the measure of each angle indicated.

1) $? + 55 + 70 = 180$

2) $? + 35 + 85 = 180$

3) $? + 30 + 90 = 180$

4) $? + 45 + 35 = 180$

Solve for x.

5) $66 + x + 30 + 90 = 180$

6) $60 + 30x + 90 = 180$

7) $x + 44 + 55 = 180$

8) $18 + 2x + 40 = 180$

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Find the measure of angle C

9) $\angle C = 20(1) = 20$

10) $71x - 1 + 20x + 90 = 180$
 $91x + 89 = 180$
 $91x = 91$
 $x = 1$

11) $x + 52 + 67 + x + 75 = 180$
 $2x + 194 = 180$
 $-194 - 194$
 $2x = -14$
 $x = -7$

12) $x = 180 - 75 - 87 = 18$

13) $2x - 10 + 3x + 90 = 180$
 $5x + 80 = 180$
 $5x = 100$
 $x = 20$

14) $134 + 6x + 5x + 2 = 180$
 $11x + 136 = 180$
 $-136 - 136$
 $11x = 44$
 $x = 4$
 $A = 5(4) + 2 = 22$

15) $38x + 6x + 5 + 90 = 180$
 $44x + 95 = 180$
 $44x = 85$
 $x = 1.93$

16) $40 + 11x - 3 + 90 = 180$
 $11x + 127 = 180$
 $11x = 53$
 $x = 4.82$

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Choose 2 from #1-4
Choose 2 from #5-8
Choose 3 from #10-16

Circle these in red pen, please!

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August 28, 2018

What is the interior triangle sum theorem?
The 3 angle of any triangle = 180°

4) Solve for ?
7) Solve for x
14) Solve for A

4) $? + 85 + 35 = 180$
 $? + 120 = 180$
 $-120 - 120$
 $? = 60$

7) $x + 44 + 55 + 90 = 180$
 $x + 189 = 180$
 $-189 - 189$
 $x = -9$

14) $5x + 2 + 6x + 134 = 180$
 $11x + 136 = 180$
 $-136 - 136$
 $11x = 44$
 $x = 4$
 $A = 5(4) + 2 = 22$

Aug 28-7:51 AM

Quiz review

12) $m\angle 1 = 60$, $m\angle 2 = 2x$ Linear Pair

$\angle 1 + \angle 2 = 180$
 $x + 2x = 180$
 $3x = 180$
 $x = 60$

$2x = 2 \cdot 60$
 $m\angle 1 = 60$, $m\angle 2 = 120$

Bonus Solve for all angles.

$80 + 2x = 180$
 $-100 - 100$
 $2x = 80$
 $x = 40$

because vertical angle!

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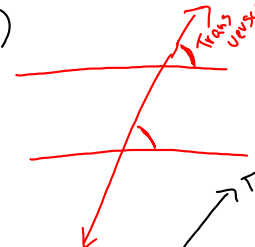

3) $2x = 80$
 $x = 40$

$4y = 60$
 $y = 15$

$4y + A = 180$
 $4(15) + A = 180$
 $-60 - 60$
 $A = 120$

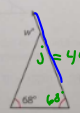
$x = 40$, $y = 15$, $A = 120$

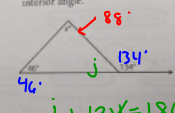
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2)  Corresponding \angle s.
 1)  alternate interior
 7 complementary $\angle = 90^\circ$
 8 supplementary or linear pair $\angle = 180^\circ$
 9 vertical angles

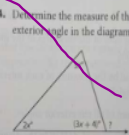
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p278-279 #11-15

11. Find w to find the measure of the exterior angle.
 $j=44$
 $68 + 68 + j = 180$
 $136 + j = 180$
 $-136 \quad -136$
 $j = 44$
 j & w are a linear pair
 $44 + w = 180$
 $-44 \quad -44$
 $w = 136$

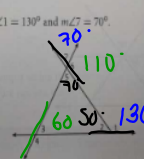
12. Find x to find the measure of the remote interior angle.
 88°
 $j + 134 = 180$
 $-134 \quad -134$
 $j = 46$
 $46 + 46 + x = 180$
 $92 + x = 180$
 $-92 \quad -92$
 $x = 88$

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14. Determine the measure of the indicated exterior angle in the diagram.
 $L = 56$
 $6x - 1 + 5x + 17 + L = 180$
 $6x - 1 + 5x + 17 + 54 = 180$
 $11x + 70 = 180$
 $-70 \quad -70$
 $11x = 110$
 $\frac{11x}{11} = \frac{110}{11}$
 $x = 10$
 $\angle H = 6x - 1$
 $\angle H = 6(10) - 1$
 $\angle H = 59$

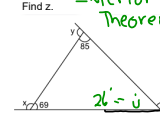
Match each angle with its corresponding measure, given $m\angle 1 = 130^\circ$ and $m\angle 7 = 70^\circ$.

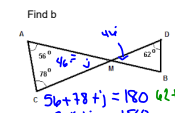
a. $\angle A$	50°
b. $m\angle 3$	60°
c. $m\angle 4$	70°
d. $m\angle 5$	110°
e. $m\angle 6$	120°

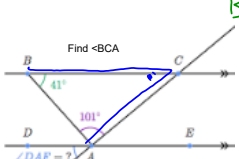


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August 29, 2018

Find z. Interior Δ Sum Theorem
 $26 = z$
 $69 + 85 + z = 180$
 $154 + z = 180$
 $-154 \quad -154$
 $z = 26$


Find b.
 $46 = b$
 $56 + 78 + b = 180$
 $134 + b = 180$
 $-134 \quad -134$
 $b = 46$

Find $\angle BCA$.
 154
 $j + z = 180$
 $26 + z = 180$
 $-26 \quad -26$
 $z = 154$
 $41 + 101 + C = 180$
 $142 + C = 180$
 $-142 \quad -142$
 $C = 38$

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Unit 2 - Similarity Congruence & Proofs Name _____

Isosceles triangle - label all parts

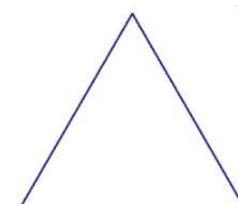


Isosceles vocabulary, please define.
 Isosceles triangle:
 Leg -
 vertex angle -
 base -
 base angle -

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Unit 2 - Similarity Congruence & Proofs Name _____

Equilateral Triangle



Find a minimum of three facts about equilateral triangles.

- 1)
- 2)
- 3)

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Triangle Congruency Manipulative

Are congruent if...	Side Side Side SSS	Angle Angle Side AAS	Side Angle Side SAS	Angle Side Angle ASA	Hypotenuse Leg HL
SSS SAS AAS ASA HL					

Aug 29-9:58 AM

Geometry _____ Name _____ ID: 1
 What congruency statement is used (if any)? Date _____ Period _____
 Determine if the two triangles are congruent. If they are, state how you know.

1) SAS

2) AAS

3) AAS

4) NOT congruent

5) SSS

6) NOT congruent

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7) SSS
 Reflexive Property

8) NOT congruent

9) NOT congruent

10) HL

11) SSS

12) HL

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13-18 then let me see!

13) SAS

14) AAS

15) SAS

16) ASA

17) NOT congruent

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18) ASA

State what additional information is required in order to know that the triangles are congruent for the reason given.

19) HL

20) SAS

21) HL

22) SSS

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
Copy Equilateral Triangle Theorem & Converse of the Equilateral Triangle Theorem.

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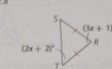
p289 #4-9

Find the measure of the indicated angle.


4. $m\angle A$



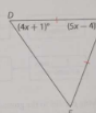
5. $m\angle R$



6. $m\angle O$




7. $m\angle E$




For 8-11, find the length of the indicated side.

8. DE



9. KL





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Geometry Name _____ ID: 1


Finding side & angles of isosceles and equilateral triangles Period _____


Find the value of x .


1) 


2) 


3) 


4) 


5) 

6) 


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
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
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
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
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
11) 


12) 


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
14) 


15) 

16) 

17) 

18) 

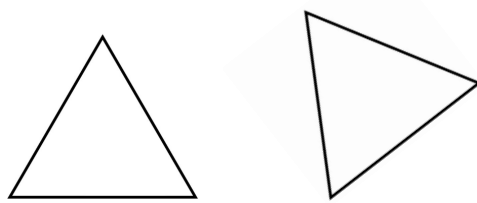
19) 

20) 

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p203

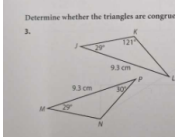
copy ASA triangle congruence theorem

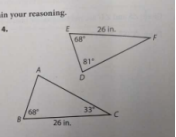


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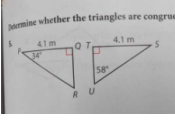
p206 #3-6

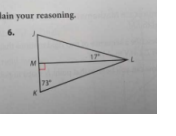
Determine whether the triangles are congruent. Explain your reasoning.

3. 

4. 

Determine whether the triangles are congruent. Explain your reasoning.

5. 

6. 

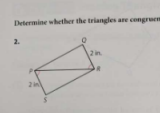
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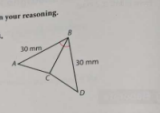
p213 copy the SAS triangle congruence theorem

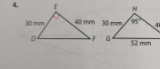
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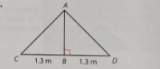
p216 #2-7

Determine whether the triangles are congruent. Explain your reasoning.

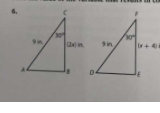
2. 

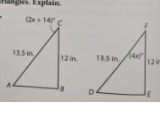
3. 

4. 

5. 

Find the value of the variable that results in congruent triangles. Explain.

6. 

7. 

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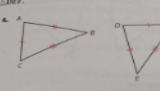
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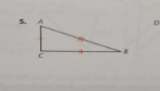
copy SSS triangle congruence

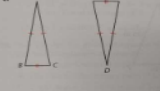
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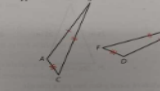
p227 #4-11

Identify a sequence of rigid motions that maps one side of $\triangle ABC$ onto one side of $\triangle DEF$.

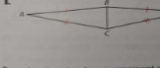
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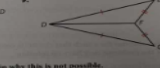
5. 

6. 

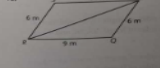
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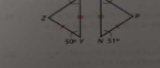
In each figure, identify the perpendicular bisector and the line segment it bisects, and explain how to use the information to show that the two triangles are congruent.

8. 

9. 

Prove that the triangles are congruent or explain why this is not possible.

10. 

11. 

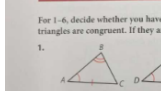
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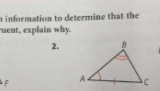
p246 copy the AAS congruence statement

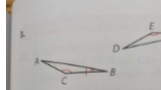
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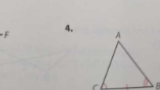
p 250 #1-6

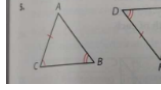
For 1-6, decide whether you have enough information to determine that the triangles are congruent. If they are congruent, explain why.

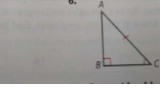
1. 

2. 

3. 

4. 

5. 

6. 

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
p256 copy HL congruence theorem

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
p258 2-5, 10-13

Determine whether enough information is given to prove that the triangles are congruent. Explain your answer.


2. $\triangle ABC$ and $\triangle DCB$




3. $\triangle PQR$ and $\triangle STU$



4. $\triangle GKI$ and $\triangle HJG$

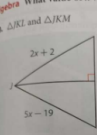


5. $\triangle EFG$ and $\triangle SQR$

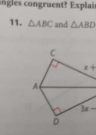


Algebra What value of x will make the given triangles congruent? Explain.

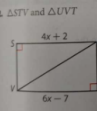
10. $\triangle JKI$ and $\triangle JKM$



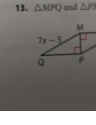
11. $\triangle ABC$ and $\triangle ABD$



12. $\triangle STV$ and $\triangle UVT$



13. $\triangle MPQ$ and $\triangle PMN$



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Study Guide

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Test

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