

August 20, 2018

Draw a supplementary angle
 Draw a complementary angle
 What do supplementary angles = ?
 What do a complementary angles = ?

complementary = 90°
 supplementary = 180°

Aug 16-1:27 PM

Classify each angle as acute, obtuse, right, or straight.

1) obtuse
 2) Right
 3) obtuse
 4) Straight
 5) acute
 6) acute

Aug 17-1:50 PM

\angle = angle symbol

Name each angle in four ways.

7) $\angle EDC$
 $\angle CDE$

8) $\angle FGH$
 $\angle HGF$
 6
 $\angle JKL$
 $\angle LKJ$
 $\angle K$
 $\angle S$

9) $\angle D$
 $\angle S$
 $\angle HGF$
 $\angle FGH$
 $\angle I$

10) $\angle JKL$
 $\angle LKJ$
 $\angle K$
 $\angle S$

Aug 17-1:50 PM

Use the angle addition postulate to find the missing measurements.

11) $m\angle HJL = 152^\circ$ and $m\angle HIF = 60^\circ$. Find $m\angle FLJ$.
 $\angle HIF + \angle FLJ = \angle HJL$
 $60^\circ + x = 152^\circ$
 -60°
 $x = 92^\circ$

12) $m\angle QRS = 135^\circ$ and $m\angle QRH = 74^\circ$. Find $m\angle HRS$.
 $\angle SRH + \angle QRH = \angle QRS$
 $x + 74^\circ = 135^\circ$
 -74°
 $x = 61^\circ$

13) Find $m\angle CDK$ if $m\angle KDE = 160^\circ$ and $m\angle CDE = 180^\circ$.
 $\angle CDK + \angle KDE = \angle CDE$
 $x + 160^\circ = 180^\circ$
 -160°
 $x = 20^\circ$
 $\angle OK = 20^\circ$

14) $m\angle JKL = 107^\circ$ and $m\angle MKL = 85^\circ$. Find $m\angle JKM$.
 $\angle JKM + \angle MKL = \angle JKL$
 $x + 85^\circ = 107^\circ$
 -85°
 $x = 22^\circ$
 $\angle JKM = 22^\circ$

Aug 17-1:50 PM

15) $m\angle FGZ = 52^\circ$ and $m\angle ZGH = 94^\circ$. Find $m\angle FGH$.
 $\angle FGZ + \angle ZGH = \angle FGH$
 $52^\circ + 94^\circ = x$
 $146^\circ = x$

16) Find $m\angle JIH$ if $m\angle JIG = 70^\circ$ and $m\angle GH = 52^\circ$.
 $\angle GIH + \angle JIG = \angle JIH$
 $52^\circ + 70^\circ = x$
 $122^\circ = x$
 $122^\circ = \angle JIH$

Aug 17-1:50 PM

Name the relationship: complementary, linear pair, vertical, or adjacent.

17) linear pair
 18) linear pair = Supplementary angle $\approx 180^\circ$

19) complementary
 20) vertical

21) adjacent
 22) complementary

Aug 17-1:51 PM

Using vertical pairs, find the measure of angle b.

23) Vertical angles are equal
 $b = 73^\circ$

24) Vertical angles are equal
 $b = 52^\circ$

25) Vertical angles are equal
 $b = 59^\circ$

26) Vertical angles are equal
 $b = 35^\circ$

27) $b + 64 = 90^\circ$
 $-64 \quad -64$
 $b = 26$

28) Complementary angle
 $\angle b + 35^\circ = 90^\circ$
 $-35^\circ \quad -35^\circ$
 $\angle b = 55^\circ$

Aug 17-1:51 PM

Using complementary angles, find the value of x.

29) $5x + 2 + 23 = 90$
 combine like terms
 $5x + 25 = 90$
 $-25 \quad -25$
 $5x = 65$
 $\frac{5x}{5} = \frac{65}{5}$
 $x = 13$

30) $x - 9 + 66 = 90$
 $x + 57 = 90$
 $-57 \quad -57$
 $x = 33$

31) $x - 3 + 2x = 90$
 $3x - 3 = 90$
 $+3 \quad +3$
 $3x = 93$
 $\frac{3x}{3} = \frac{93}{3}$
 $x = 31$

Aug 17-1:51 PM

Using linear pairs, find the measure of angle b.

32) $123 + b = 180$
 $-123 \quad -123$
 $b = 57$

33) $61 + b = 180$
 $-61 \quad -61$
 $b = 119$

34) $48 + b = 180$
 $-48 \quad -48$
 $b = 132$

Aug 17-1:51 PM

Find the value of x.

35) $4x + 3 + 77 = 180$
 $4x + 80 = 180$
 $-80 \quad -80$
 $4x = 100$
 $\frac{4x}{4} = \frac{100}{4}$
 $x = 25$

36) $2x + 9 + 3x + 1 + 77 = 180$
 $5x + 87 = 180$
 $-87 \quad -87$
 $5x = 93$
 $\frac{5x}{5} = \frac{93}{5}$
 $x = 34$

Aug 17-1:52 PM

Complementary Angles: Find the measure of angle b.

38) $b + 67 = 90$
 $-67 \quad -67$
 $b = 23$

39) $36 + b = 90$
 $-36 \quad -36$
 $b = 54$

40) $63 + b = 90$
 $-63 \quad -63$
 $b = 27$

41) $41 + b = 90$
 $-41 \quad -41$
 $b = 49$

Aug 17-7:32 AM

Supplementary Angles: Find the measure of angle b.

42) $120 + b = 180$
 $-120 \quad -120$
 $b = 60$

43) $b + 29 = 180$
 $-29 \quad -29$
 $b = 151$

44) $130 + b = 180$
 $-130 \quad -130$
 $b = 50$

45) $b + 92 = 180$
 $-92 \quad -92$
 $b = 88$

Aug 17-7:32 AM

August 21, 2018

Use tech:

What is a transversal in mathematics?
Draw a picture.

Draw two parallel line & a transversal

t, transversal

Relationships with angles and a transversal
l, k are line parallel

Aug 20-11:45 AM

Aug 17-2:37 PM

The angle relationships when parallel lines are cut by a transversal are

- Alternate Interior Angles**
alternate sides of the transversal and interior of the parallels
- Same Side Interior Angles**
Same side of the transversal and interior of the parallels
- Alternate Exterior Angles**
alternate sides of the transversal and exterior of the parallels
- Same Side Exterior Angles**
Same side of the transversal and exterior of the parallels

Write the angle relationship for each pair of angles.

Vocabulary:
Alternate Interior Angles
Alternate Exterior Angles
Corresponding Angles
Complementary Angles
Supplementary Angles
Vertical Angles

- 1 and -2 are corresponding LS
- 1 and -3 are supplementary LS
- 1 and -4 are alternate exterior LS
- 2 and -5 are vertical LS
- 2 and -8 are alternate interior LS
- 3 and -2 are supplementary LS
- 3 and -7 are alternate exterior LS
- 3 and -8 are corresponding LS
- 4 and -7 are alternate interior LS
- 4 and -5 are same side exterior LS
- 5 and -7 are supplementary LS

Alternate Interior Angles are equal
Alternate exterior angles are equal
Corresponding angles are equal
Complementary Angles = 90°
Supplementary Angles = 180°
Vertical Angles are the same
Same side interior angle = 180°
Same side exterior angle = 180°

- 1 and -7 are _____
- 4 and -4 are _____
- 3 and -8 are _____
- 2 and -8 are _____
- 1 and -8 are _____
- 3 and -4 are _____
- 1 and -7 are _____

Aug 17-2:39 PM

Aug 17-2:46 PM

transversal practice

Geometry _____ Name _____ ID: 1
Copyright © 2014 Edmentum - All rights reserved. Parallel lines, transversal & angle relationships Date _____ Period _____

Find the measure of each angle indicated.

1) Same side interior
 $130 + 170 = 180$
 $-170 = -130$
 $? = 50$

2) alternate exterior LS
 $? = 110$

3) same side interior
 $83 + 83 = 180$
 $-83 = -83$
 $? = 97$

Solve for x.

4) Vertical
 $-4 + 8x = 12 + 6x$
 $+4 - 6x = +4 - 6x$
 $2x = 16$
 $x = 8$

5) interior alternate LS
 $110 = 7 + 17x$
 $-8 = -8$
 $102 = 17x$
 $\frac{102}{17} = \frac{17x}{17}$
 $6 = x$

Aug 17-2:46 PM

6) $7x + 8 = 9x - 4$
 $-9x + 8 = -9x - 4$
 $-2x = -12$
 $x = 6$

7) alternate ext. LS
 $11x + 2 = 118 + 2$
 $-11x - 2 = -118 - 2$
 $-x = -8$
 $x = 8$

8) alternate ext. LS
 $20x = 19x + 5$
 $-19x = -19x$
 $x = 5$
 $20x = 20(5) = 100$

9) alternate interior LS
 $? = 137$

10) corresponding LS
 $? = 97$

Find the value of x that makes lines u and v parallel.

11) Alternate exterior LS
 $7x + 8 = 8x + 2$
 $-7x - 2 = -7x - 2$
 $6 = x$ SG!

12) A.I.T. INT. LS
 $10x + 10 = 10$
 $-10 = -10$
 $10x = 10$
 $\frac{10x}{10} = \frac{10}{10}$
 $x = 10$

Aug 21-11:09 AM

Study Guide

Unit 2 > 1.1
 Parallel Lines Cut by a Transversal

Given: Lines AB and CD are parallel. Another line EF cuts across the two parallel lines.

- The two angles that sit on opposite sides of a transversal, inside the parallel lines are called _____ angles and would be congruent.
- The two angles that sit on the same side of a transversal and in the same location are called _____ angles and are congruent.

3) Solve for x and y , then find angle A .

4) Find the measure of the alternate exterior angles in the diagram below.

5) Find the value of x .

6) Find the value of x .

Proportion of Angles

- If two angles add to 90° degrees, they are called _____ angles.
- Two adjacent angles who's sum add to 180° degrees are called _____ angles.
- When two lines intersect, there are two pairs of opposite angles that are called _____ angles.

Aug 20-12:00 PM

10) The measure of angle A is 25° , $m\angle C = 3x + 4$ and $m\angle D = 4x + 5$.
 Find $m\angle E$ and $\angle D$.

11) The measure of an angle is 33° , $m\angle C = 3x + 2$ and $m\angle D = 4x + 5$.
 Find $m\angle E$.

12) In the diagram below, $\angle 1$ and $\angle 2$ are a linear pair. $m\angle 1 = 3x$ and $m\angle 2 = 2x + 7$.
 Find the measure of each angle.

For questions 13-15, use the diagram to tell whether the angles are vertical angles, a linear pair, or neither.

13) $\angle 1$ and $\angle 5$ _____
 14) $\angle 2$ and $\angle 3$ _____
 15) $\angle 3$ and $\angle 7$ _____

5 Bonus Points: Solve for ALL angles in the diagram below. Label all four angle measures.

Aug 21-1:46 PM

quiz

Aug 20-12:01 PM

Congruent triangles p 194

Your Turn
 Determine whether the given triangles are congruent. Explain your reasoning.

4.

5.

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quiz

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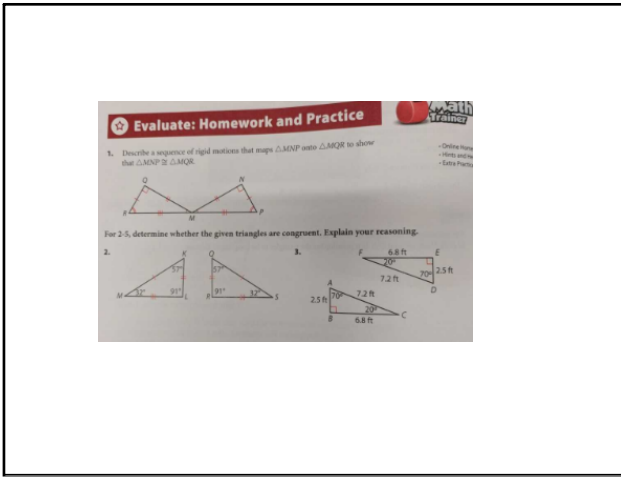
Example 2 Find the value of the variable that results in congruent triangles.

A

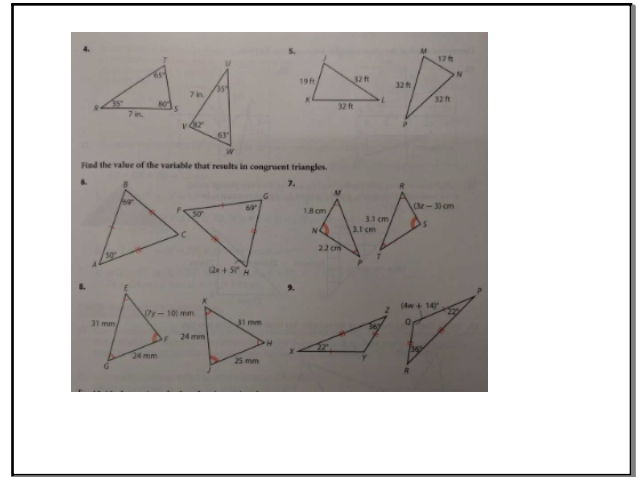
Step 1 Identify corresponding angles.

$\angle M$ 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 $\angle L$.

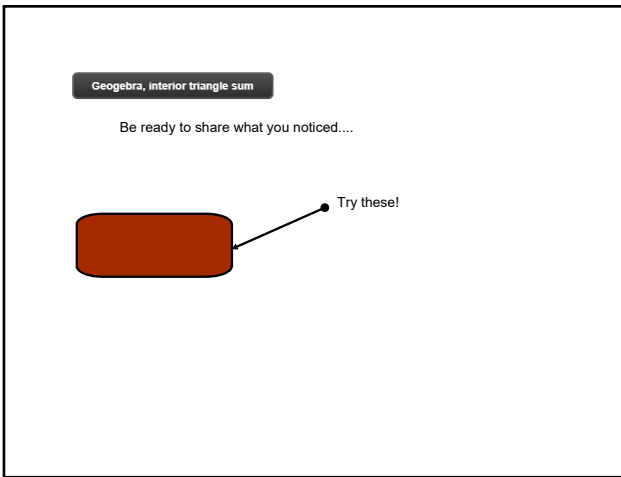
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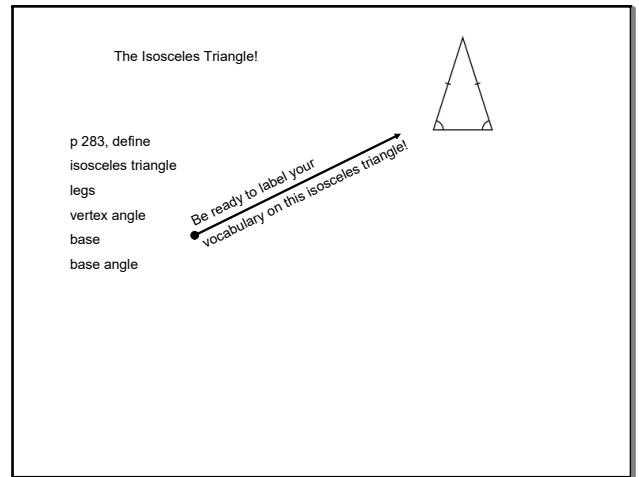
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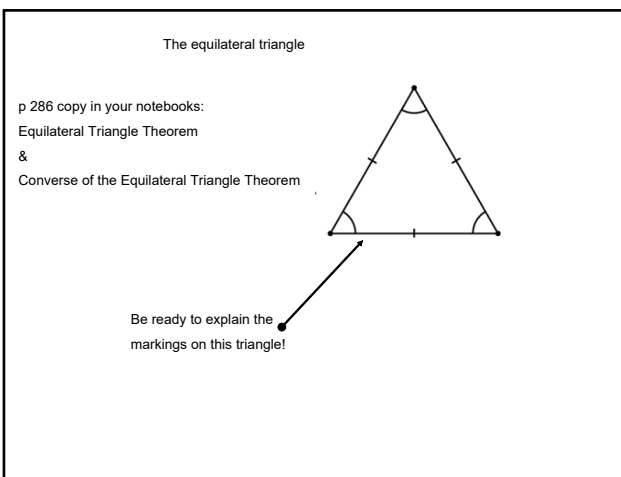
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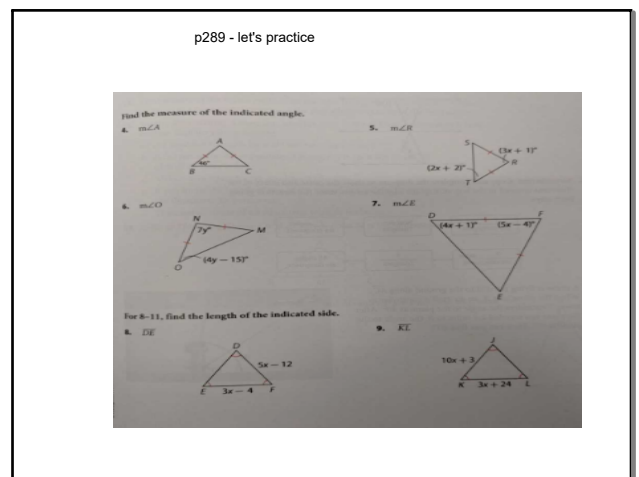
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



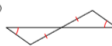




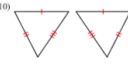
Triangle Congruence..

What does congruence mean?

The Rules	The Practice
p 203 copy ASA Triangle Congruence Theorem	p 206 #3-7
p 222 copy SSS Triangle Congruence Theorem	p 227 #4-11
p 227 copy AAS Triangle Congruence Theorem	p 250 #1-6
p 256 copy HL Triangle Congruence Theorem	p 258 #1-5

Aug 17-2:12 PM

State if the two triangles are congruent. If they are, state how you know.

1) 	2) 
3) 	4) 
5) 	6) 
7) 	8) 
9) 	10) 

Aug 17-2:33 PM