

August 20, 2018

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

complementary = 90°
 supplementary = 180°

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

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

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\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) $\angle D$
 $\angle 5$
 $\angle HGF$
 $\angle FGH$
 $\angle 1$

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

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Use the angle addition postulate to find the missing measurements.

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

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

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

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

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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 $m\angle GH = 52^\circ$.
 $\angle GIH + \angle JIG = \angle JIH$
 $52^\circ + 70^\circ = x$
 $122^\circ = x$
 $122^\circ = \angle JIH$

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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

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

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

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

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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) $x = 34$

37) $x = 23$

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Complementary Angles: Find the measure of angle b.

38) $b = 23$

39) $b = 54$

40) $b = 27$

41) $b = 49$

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Supplementary Angles: Find the measure of angle b.

42) $b = 60$

43) $b = 151$

44) $b = 50$

45) $b = 88$

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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

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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

Same side interior angle
Same side exterior angle

corresponding LS
Supplementary LS
Supplementary LS
Vertical LS
Alternate interior LS
Same side interior LS
Alternate interior LS
Supplementary LS
Corresponding LS
Alternate exterior LS
Same side exterior LS
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 angles are equal to 180°
Same side exterior angles = 180°

◁ and ◁ 2 are _____
◁ and ◁ 3 are _____
◁ and ◁ 4 are _____
◁ and ◁ 5 are _____
◁ and ◁ 6 are _____
◁ and ◁ 7 are _____
◁ and ◁ 8 are _____
◁ and ◁ 1 are _____
◁ and ◁ 2 are _____
◁ and ◁ 3 are _____
◁ and ◁ 4 are _____
◁ and ◁ 5 are _____
◁ and ◁ 6 are _____
◁ and ◁ 7 are _____
◁ and ◁ 8 are _____

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transversal practice

Geometry Name _____ ID: 1
Date _____ Period _____

Parallel lines, transversal & angle relationships

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
 $110 = 7 + 17x$
 $-8 = 17x$
 $102 = 17x$
 $102 / 17 = 6 = x$

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

7) Find the measure of the angle indicated in bold.
 $11x + 2 = 118$
 $-2 = 116$
 $11x = 116$
 $x = 10.5$

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

9) alternate interior LS
 $? = 130$

10) corresponding LS
 $? = 97$

11) Find the value of x that makes lines u and v parallel.
 Alternate exterior LS
 $7x + 4 = 8x + 9$
 $-7x - 4 = 8x - 9$
 $-11x = -5$
 $x = 5/11$

12) AIT. INT. LS
 $10x + 10 = 10$
 $-10 = -10$
 $10x = 0$
 $x = 0$

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August 22, 2018

Solve for ALL angles on the parallel lines and the transversal, given that $\angle 4 = 5x + 35$ and $\angle 7 = 45$

Supplementary

$$15 + 5x + 35 = 80$$

$$80 + 5x = 80$$

$$-80 \quad -80$$

$$5x = 0$$

$$\frac{5x}{5} = \frac{0}{5}$$

$$x = 0$$

$$5(0) + 35 = 35$$

What is the value for x and what is the measure of the top, right angle?

$2x + 20$
 $2(30) + 20 = 80$

$3x - 10$
 $3(0) - 10 = -10$

$2x - 10 = 2x + 20$
 $-3x$
 $-10 = -10$
 $-20 = -20$

$30 = x$

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Study Guide

Unit 2 5G.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 **alternate interior angles** and would be congruent.
- The two angles that sit on the same side of a transversal and in the same location are called **corresponding angles** and are congruent.
- Solve for x and y, then find angle A.
- Find the measure of the alternate exterior angles in the diagram below.

3) $x = 16, y = 31, A = 118$

4) $x = 5$ Angle measure = 100

5) Find the value of x.

7) If two angles add to 180 degrees, they are called **supplementary angles**.

8) Two adjacent angles who's sum add to 180 degrees are called **supplementary pair**.

9) When two lines intersect, there are two pairs of opposite angles that are called **vertical angles**.

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10) The measure of angle A is 45. Find the complementary angle, $\angle B$.

$$115 + x = 90$$

$$-115 \quad -45$$

$$x = 45$$

11) The measure of an angle is 135. Find the supplementary angle, $\angle C$.

$$135 + \angle C = 180$$

$$-135 \quad -135$$

$$m\angle C = 45$$

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

Linear pair
 $2x + 3x = 180$
 $5x = 180$
 $x = 36$
 $m\angle 1 = 2(36) = 72$
 $m\angle 2 = 3(36) = 108$

13) $\angle 1$ and $\angle 2$ are a linear pair. **Linear pair**

14) $\angle 2$ and $\angle 4$ are vertical angles. **Vertical angles**

15) $\angle 1$ and $\angle 7$ are **Neither**

Solve for ALL angles in the diagram below. Label all four angle measures.

$45 + x = 135$
 $x = 90$
 $x + 90 + x = 180$
 $2x + 90 = 180$
 $2x - 90 = 180 - 90$
 $2x = 90$
 $x = 45$

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August 23, 2018

Quick review....

Vertical angles are **EQUAL**

Corresponding angles are **EQUAL**

Complementary angles are **= 90°**

Supplementary angles are **= 180°**

Same side interior angles are **= 180°**

Alternate interior angles are **Equal**

Same side exterior angles are **= 180°**

Alternate exterior angles are **equal 180°**

INTERIOR

transversal

quiz

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After the quiz...access the website www.mrscolelovesmathematics.weebly.com

Unit 2 - Similarity, Congruence, & Proofs

UNIT 2: SIMILARITY, CONGRUENCE AND PROOFS

Unit 2: Building on standards from Unit 1 and from middle school, students will use transformations and proportional reasoning to develop a formal understanding of similarity and congruence. Students will identify criteria for similarity and congruence of triangles, develop proofs with geometric proofs, justify of formulas, and use the concepts of similarity and congruence to prove theorems involving lines, angles, triangles, and other polygons.

The following will take you to activities that will provide a better understanding of materials in Unit 2:

- Geogebra, Exploring parallel lines cut by a transversal
- Geogebra, angle addition practice
- Geogebra, vertical angle theorem
- Geogebra, interior triangle sum

Practice for unit 2 materials:

- Quizlet, practice your recoded triangle vocabulary
- IXL, try your skills at triangle congruence
- IXL, practice your angle naming skills
- IXL, angle classification
- Mathbits, practice your angle geometry with this quiz

Find a minimum of 2 from the 'top' to explore. Write at least 1 sentence each about what you learned.

Find a minimum of 2 from the 'bottom' to explore. Write at least 1 sentence each about what you learned.

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August 24, 2018

Aug 23-11:07 AM

What are ticks and curves on triangles??

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Congruent triangles p 194

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

4.

5.

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

Step 1 Identify corresponding angles.
 $\angle M$ corresponds to $\angle I$, because they have the same measure and they are formed by congruent corresponding sides. Similarly, $\angle N$ corresponds to $\angle K$, $\angle P$ corresponds to $\angle L$.

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Evaluate: Homework and Practice

1. Describe a sequence of rigid motions that maps $\triangle MNP$ onto $\triangle MQR$ to show that $\triangle MNP \cong \triangle MQR$.

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

2.

3.

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4.

5.

6.

7.

8.

9.

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

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Geogebra, interior triangle sum

Be ready to share what you noticed....

Try these!

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The Isosceles Triangle!

p 283, define
 isosceles triangle
 legs
 vertex angle
 base
 base angle

Be ready to label your vocabulary on this isosceles triangle!

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The equilateral triangle

p 286 copy in your notebooks:
 Equilateral Triangle Theorem
 &
 Converse of the Equilateral Triangle Theorem

Be ready to explain the markings on this triangle!

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p289 - let's practice

Find the measure of the indicated angle.

4. $m\angle A$

5. $m\angle R$

6. $m\angle D$

7. $m\angle E$

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

8. DE

9. KE

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Triangle Congruence..

What does congruence mean?

The Rules


p 203 copy ASA Triangle Congruence Theorem
 p 222 copy SSS Triangle Congruence Theorem
 p 227 copy AAS Triangle Congruence Theorem
 p 256 copy HL Triangle Congruence Theorem


The Practice


p 206 #3-7
 p 227 #4-11
 p 250 #1-6
 p 258 #1-5


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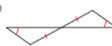
State if the two triangles are congruent. If they are, state how you know.


1) 

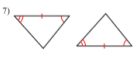
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
3) 


4) 

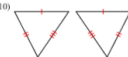
5) 

6) 

7) 

8) 

9) 

10) 

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