

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

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 $m\angle HJF = 60^\circ$. Find $m\angle FJL$.
 $\angle HJF + \angle FJL = \angle HJL$
 $60^\circ + x = 152^\circ$
 $-60^\circ -60^\circ$
 $x = 92^\circ$

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

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 angle = are equal
 $b = 73^\circ$

24) vertical angle = are equal
 $b = 52^\circ$

25) vertical angle = are equal
 $b = 59^\circ$

26) vertical angle = 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) combine like terms
 $5x + 2 + 23 = 90$
 $5x + 25 = 90$
 $-25 \quad -25$
 $5x = 65$
 $\underline{\quad \quad \quad}$
 $x = 13$

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

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

Aug 17-1:51 PM

Using linear pairs, find the measure of angle b.

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

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

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

Aug 17-1:51 PM

Find the value of x.

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

36) $x = 34$

Aug 17-1:52 PM

Complementary Angles: Find the measure of angle b.

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

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

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

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

Aug 17-7:32 AM

Supplementary Angles: Find the measure of angle b.

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

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

44) $b + 138 = 180$
 $-138 \quad -138$
 $b = 42$

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
k, l 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

corresponding LS
Supplementary LS
Supplementary LS
Vertical LS
Alternate interior LS
Same side interior LS
Alternate interior LS
Supplementary 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 angle = equal to 180°
Same side exterior angle = 180°

Same side interior angle
Same side exterior angle

◁ 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 _____

Aug 17-2:39 PM

Aug 17-2:46 PM

transversal practice

Geometry Name _____ ID: 1
Date _____ Period _____

Parallel lines, transversal & angle relationships

Find the measure of each angle indicated.

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

2) alternate exterior LS
 $? = 110$

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

Solve for x.

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

5) interior alternate LS
 $110 = 7 + 17x$
 $-8 = -8$
 $102 = 17x$
 $102 / 17 = 6$
 $6 = x$

Aug 17-2:46 PM

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

7) Find the measure of the angle indicated in bold.
 When x is found, substitute x in:
 $11x + 2 = 12x - 6$
 $-12x + 2 = 12x - 6$
 $-10x = -8$
 $x = 8/10$

8) $11x + 2 = 90$
 $11x = 88$
 $x = 8$

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
 $7x + 4 = 8x + 9$
 $-7x + 4 = -7x + 9$
 $6 = x$ SG!

12) A.I.T. INT. LS
 $10x + 10 = 10$
 $-10 = -10$
 $10x = 0$
 $10 / 10 = 1$
 $x = 10$

Aug 21-11:09 AM

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?

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

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

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

$30 = x$

Aug 21-3:59 PM

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.

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

Find the value of x.

$7x + 2 + 108 = 180$
 $7x + 110 = 180$
 $-110 \quad -110$
 $7x = 70$
 $\frac{7x}{7} = \frac{70}{7}$
 $x = 10$

Find the value of x.

$9x + y = 10$
 $9x = 9$
 $x = 1$

Angle measure = 100

Properties of Angles

- If two angles add to 180 degrees, they are called **supplementary angles**.
- Two adjacent angles who's sum add to 180 degrees are called **supplementary pair**.
- When two lines intersect, there are two pairs of opposite angles that are called **vertical angles**.

Aug 20-12:00 PM

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

$$45 + x = 90$$

$$-45 \quad -45$$

$$x = 45$$

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

$$2x + 3x = 180$$

$$5x = 180$$

$$\frac{5x}{5} = \frac{180}{5}$$

$$x = 36$$

$m\angle 1 = 2(36) = 72$
 $m\angle 2 = 3(36) = 108$

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

13) $\angle 1$ and $\angle 3$ are **Vertical LS**
14) $\angle 2$ and $\angle 4$ are **Neither**
15) $\angle 1$ and $\angle 2$ are **Neither**

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

$$135 + x = 180$$

$$x = 45$$

$$x + 90 + x = 180$$

$$2x + 90 = 180$$

$$-90 \quad -90$$

$$2x = 90$$

$$\frac{2x}{2} = \frac{90}{2}$$

$$x = 45$$

Aug 21-1:46 PM

August 23, 2018

Quick review...

Vertical angles are **EQUAL**

Corresponding angles are **EQUAL**

Complementary angles are **$= 90^\circ$**

Supplementary angles are **$= 180^\circ$**

Same side interior angles are **$= 180^\circ$**

Alternate interior angles are **Equal**

Same side exterior angles are **$= 180^\circ$**

Alternate exterior angles are **Equal**

INTERIOR

transversal

quiz

Aug 20-12:01 PM

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, drawing proofs with geometric tools (ruler of formal), 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:

- Quick, practice your recited triangle vocabulary
- Try your skills at triangle congruence
- Practice your angle naming skills
- 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.

Aug 23-7:35 AM

August 24, 2018

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

$$2x = 80$$

$$\frac{2x}{2} = \frac{80}{2}$$

$$x = 40$$

$$4y = 60$$

$$\frac{4y}{4} = \frac{60}{4}$$

$$y = 15$$

$$4y + A = 180$$

$$4(15) + A = 180$$

$$60 + A = 180$$

$$-60 \quad -60$$

$$A = 120$$

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

Aug 23-11:07 AM

What are ticks and arc curves on triangles??

one tick mark means =
two tick marks means =
three tick marks means =

one angle arc means =
two angle arcs means =
three angle arcs means =

congruence statement: $\triangle J \cong \triangle K$

sides also line up with the congruence statement. Jul 18, 2012

Legs

$\overline{JS} \cong \overline{DE}$
 $\overline{RS} \cong \overline{FE}$
 $\overline{RT} \cong \overline{FD}$

Angles

$\angle S \cong \angle E$
 $\angle T \cong \angle D$
 $\angle R \cong \angle F$

clip from website

Aug 23-11:07 AM

<https://www.youtube.com/watch?v=EoVlcg5BBxs>

Aug 24-10:14 AM

Which congruence statement is correct?

9)

A) $\triangle GFE \cong \triangle BDC$
 B) $\triangle FEG \cong \triangle DBC$
 C) $\triangle GEF \cong \triangle DCB$
 D) $\triangle GFE \cong \triangle DCB$

JSKH
GTIM

Aug 23-11:07 AM

Write a congruence statement.

18)

Aug 23-12:03 PM

Your turn to write a congruence statement.

21)

Aug 23-12:04 PM

Congruent triangles p 194

Your Turn

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

4.

5.

Aug 17-1:52 PM



Aug 17-2:45 PM

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

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 $\angle L$.

Aug 17-1:58 PM

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.

Aug 17-1:58 PM

4.

5.

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

6.

7.

8.

9.

Aug 17-1:59 PM

Geogebra, interior triangle sum

Be ready to share what you noticed....

Try these!

Aug 17-2:02 PM

The Isosceles Triangle!

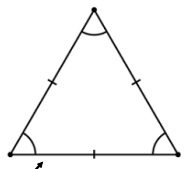
p 283, define
isosceles triangle
legs
vertex angle
base
base angle

Be ready to label your vocabulary on this isosceles triangle!

Aug 17-2:04 PM

The equilateral triangle

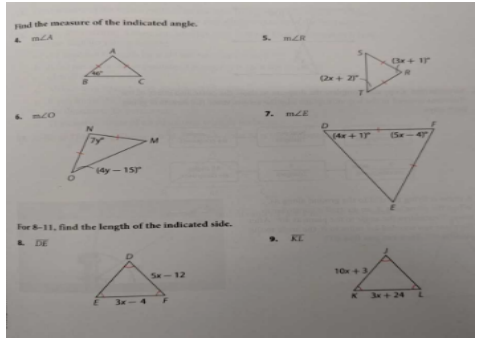
p 286 copy in your notebooks:
Equilateral Triangle Theorem
&
Converse of the Equilateral Triangle Theorem



Be ready to explain the markings on this triangle!

Aug 17-2:07 PM

p289 - let's practice



Aug 17-2:09 PM

p278-279 #11 -15

Aug 24-10:51 AM

Triangle Congruence..

What does congruence mean?

The Rules







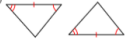


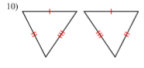
p 203 copy ASA Triangle Congruence Theorem
p 222 copy SSS Triangle Congruence Theorem
p 227 copy AAS Triangle Congruence Theorem
p 256 copy HL Triangle Congruence Theorem

The Practice

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

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