

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
 $\angle JKL$
 $\angle LKJ$
 $\angle K$
 $\angle 5$

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

10) $\angle JKL$
 $\angle LKJ$
 $\angle K$
 $\angle 5$

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 angle are equal
 $b = 73^\circ$

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

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

26) vertical angle
 $b = 35^\circ$

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
 $5x + 2 + 23 = 90$
 $5x + 25 = 90$
 $-25 \quad -25$
 $5x = 65$
 $5 \quad 5$
 $x = 13$

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

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

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
 $4x + 3 + 77 = 180$
 $4x + 80 = 180$
 $-80 \quad -80$
 $4x = 100$
 $4 \quad 4$
 $x = 25$

36) $x = 34$

37) $x = 23$

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

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

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

Handwritten answers:
-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 same side interior LS
-3 and -7 are alternate interior LS
-3 and -8 are supplementary LS
-4 and -7 are corresponding LS
-4 and -5 are alternate exterior LS
-4 and -6 are same side exterior LS
-5 and -7 are supplementary LS

Other notes:
-1 and -2 are equal
-1 and -3 are equal
-1 and -4 are equal
-2 and -8 are equal
-3 and -7 are equal
-3 and -8 are 90°
-4 and -5 are 180°
-4 and -6 are the same
-4 and -7 are equal to 180°
-5 and -7 are same side exterior = 180°

Aug 17-2:39 PM

Aug 17-2:46 PM

transversal practice

Find the measure of each angle indicated.

1) Same side interior
 $\angle + 130^\circ = 180^\circ$
 $- 130^\circ = -130^\circ$
 $\angle = 50^\circ$

2) alternate exterior LS
 $\angle = 110^\circ$

3) same side interior
 $\angle + 83^\circ = 180^\circ$
 $- 83^\circ = -83^\circ$
 $\angle = 97^\circ$

Solve for x.

4) Vertical
 $-4 + 8x = 12 + 6x$
 $+4 - 6x = +4 - 6x$
 $2x = 16$
 $\frac{2x}{2} = \frac{16}{2}$
 $x = 8$

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

Aug 17-2:46 PM

Find the measure of the angle indicated in each.

6) $7x + 8 = 9x - 4$
 $-9x + 8 = -9x - 8$
 $-2x = -12$
 $\frac{-2x}{-2} = \frac{-12}{-2}$
 $x = 6$

7) When x is found, substitute x in:
 $11x + 2 = 12x - 6$
 $-12x + 2 = -12x - 6$
 $-10 = -8$
 $x = 8$

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

9) alternate interior LS
 $\angle = 133^\circ$

10) corresponding LS
 $\angle = 97^\circ$

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

11) Alternate exterior LS
 $7x + 8 = 8x + 9$
 $-8x + 8 = -8x - 9$
 $6 = x$
SG!

12) AIT. INT. LS
 $10x + 10 = 110$
 $-10 = -10$
 $10x = 100$
 $\frac{10x}{10} = \frac{100}{10}$
 $x = 10$

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?

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

$(3x - 10)^\circ$

$-20 = -1x$
 $20 = x$

$2x - 10 = 2x + 20$
 $-3x$
 $-10 = -1x + 20$
 $-20 \quad -20$

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.

1) The two angles that sit on opposite sides of a transversal, inside the parallel lines are called **alternate exterior angles** and would be congruent.

2) The two angles that sit on the same side of a transversal and in the same location are called **corresponding 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.

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

5) Find the value of x.

6) Find the value of x.

$x = 11$

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/linear pair**.

9) 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, $\angle B$.

$$45 + x = 90$$

$$-45 \quad -45$$

$$x = 45$$

$m\angle B = 45$

11) The measure of an angle is 35° . Find the supplementary angle, $\angle C$.

$$35 + \angle C = 180$$

$$-35 \quad -35$$

$$m\angle C = 145$$

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

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.

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 $\angle K$, 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.

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

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

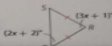
p289 - let's practice

Find the measure of the indicated angle.


4. $m\angle A$



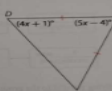
5. $m\angle R$



6. $m\angle O$




7. $m\angle E$




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

8. DE



9. KL



Aug 17-2:09 PM

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