

August 20, 2018

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

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

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Name each angle in four ways.

7) $\angle EDC$
 $\angle CDE$
 $\angle D$
 $\angle 5$

8) $\angle HGF$
 $\angle FGH$
 $\angle G$
 $\angle 1$

9) $\angle HGF$
 $\angle FGH$
 $\angle G$
 $\angle 1$

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

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Use the angle addition postulate to find the missing measurements.

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

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

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

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

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

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

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

17) linear pair

18) adjacent/linear pair ✓

19) complementary

20) vertical

21) adjacent

22) complementary

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Using vertical pairs, find the measure of angle b.

23) vertical angle
 $b = 73$

24) $b = 52^\circ$

25) $b = 59^\circ$

26) $b = 35^\circ$

27) Complementary
 $b + 64 = 90$
 $-64 -64$
 $b = 26$

28) Complementary
 $b + 35 = 90$
 $b = 55$

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Using complementary angles, find the value of x.

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

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

31) line 180
 $2x + x - 3 = 90$
 $3x - 3 = 90$
 $+3 +3$
 $3x = 93$
 $\frac{3x}{3} = \frac{93}{3}$
 $x = 31$

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Using linear pairs, find the measure of angle b.

32) $\hat{=} 180$
 $b + 123 = 180$
 $-123 -123$
 $b = 57$

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

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

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Find the value of x.

35) $4x + 3 + 77 = 180$

36) $2x + 9 + 3x + 1 = 180$
 $5x + 10 = 180$
 $5x = 170$
 $\frac{5x}{5} = \frac{170}{5}$
 $x = 34$

37) $x + 18 + 6x + 1 = 180$
 $7x + 19 = 180$
 $7x = 161$
 $\frac{7x}{7} = \frac{161}{7}$
 $x = 23$

80, 34, 23, 18

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Complementary Angles: Find the measure of angle b.

38) $b + 67 = 90$
 $b = 23$

39) $b + 36 = 90$
 $b = 54$

40) $b + 63 = 90$
 $b = 27$

41) $b + 41 = 90$
 $b = 49$

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Supplementary Angles: Find the measure of angle b.

42) $b + 130 = 180$
 $b = 50$

43) $b + 29 = 180$
 $b = 151$

44) $b + 138 = 180$
 $b = 42$

45) $b + 92 = 180$
 $b = 88$

Aug 17-7:32 AM

August 21, 2018
 Use tech:
 What is a transversal in mathematics?
 Draw a picture.

Aug 20-11:51 AM

Draw two parallel line & a transversal

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

Aug 17-2:39 PM

Write the angle relationship for each pair of angles.

Aug 17-2:46 PM

transversal practice
 Parallel lines, transversal & angle relationships
 Find the measure of each angle indicated.

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Aug 21-11:52 AM

August 22, 2018

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

$135^\circ = 45^\circ + 5x + 35^\circ$
 $180^\circ = 45^\circ + 5x + 35^\circ$
 $180^\circ = 80^\circ + 5x$
 $-80 \quad -80$
 $100 = 5x$
 $20 = x$
 $5(20) + 35$
 $100 + 35$
 135°

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

$2x + 20 = 3x - 10$
 $-3x \quad -3x$
 $-x + 20 = -10$
 $-20 \quad -20$
 $-x = -30$
 $x = 30$

$2(30) + 20 = 80$
 $60 + 20 = 80$

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study guide

Unit 2 > 4.1

Parallel Lines Cut by a Transversal

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

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

$5x = 80$
 $x = 16$
 $2x = 32$
 $3y = 118$
 $y = 39.33$

$20x = 19x + 5$
 $20x - 19x = 5$
 $x = 5$
 $80(5) = 400$
 100°

$7x + 2 + 108 = 180$
 $7x + 110 = 180$
 $7x = 70$
 $x = 10$

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

Properties of Angles

- 7) If two angles add to 90° degrees, they are called **complementary**.
- 8) Two adjacent angles whose sum add to 180° degrees are called a **linear pair**.
- 9) When two lines intersect, there are two pairs of opposite angles that are called **vertical** angles.

Aug 20-12:01 PM

10) The measure of angle A is $2x$. Find the measure of angle B.

$\angle B + 45^\circ = 90^\circ$
 $-45 \quad -45$
 $\angle B = 45^\circ$

11) The measure of an angle is 135° . Find the measure of the adjacent angle.

$\angle E + 135^\circ = 180^\circ$
 $-135 \quad -135$
 $\angle E = 45^\circ$

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

$2x + 3x = 180$
 $5x = 180$
 $x = 36$

13) $\angle 1$ and $\angle 2$ are vertical angles.

14) $\angle 2$ and $\angle 3$ are linear pair.

15) $\angle 4$ and $\angle 7$ are vertical angles.

$m\angle 1 = 72$, $m\angle 2 = 108$

16) Point G is the vertex of the angles in the diagram below. Label all four angle measures.

$x + 90 + x = 180$
 $2x + 90 = 180$
 $-90 \quad -90$
 $2x = 90$
 $x = 45$

$90 + 45 = 135$

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quiz

Aug 20-12:02 PM

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 $\angle L$, 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 $\angle I$.

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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.

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

6.

7.

8.

9.

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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!

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

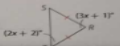
p289 - let's practice

Find the measure of the indicated angle.

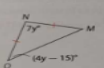
4. $m\angle A$



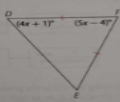
5. $m\angle R$



6. $m\angle O$




7. $m\angle E$

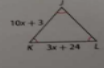


For 8-11, find the length of the indicated side.

8. DE



9. KL



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Triangle Congruence..

What does congruence mean?

The Rules


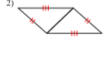


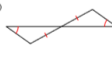




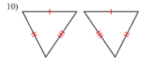
p 203 copy ASA Triangle Congruence Theorem
 p 222 copy SSS Triangle Congruence Theorem
 p 227 copy AAS Triangle Congruence Theorem
 p 256 copy HL Triangle Congruence Theorem

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

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