7.2 Complimentary and Supplementary Angles Teacher Notes

POD: Solve.

1.) $3x + 6 = 18$ 2.) $3x + 2x + 10 = 90$

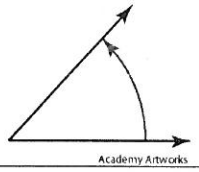
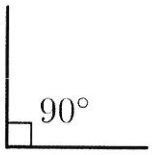
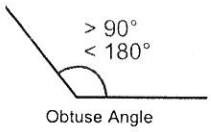
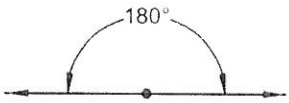
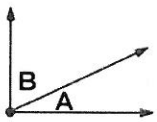
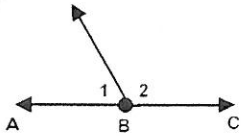
$x = 4$ $x = 16$

7.2 Day 1 #5 is 22 not 33

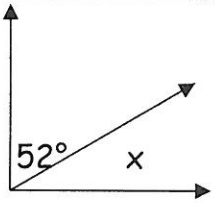
Objective: Students will be able to classify complimentary and supplementary angles. Students will also be able to find a missing measure of an angle.

Essential Question: How can you classify two angles as complementary or supplementary?

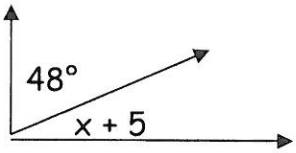
Vocabulary:

Acute Angle: an angle with a measure between 0° and 90° 	**Right Angle**: an angle with a measure of exactly 90° 	**Obtuse Angle**: an angle with a measure between 90° and 180° 	**Straight Angle**: an angle with a measure of exactly 180° 
Complementary Angles: 2 angles whose sum (+) of their measures equal 90° 		**Supplementary Angles**: 2 angles whose sum (+) of their measures equals 180° 	

Find the missing angle.

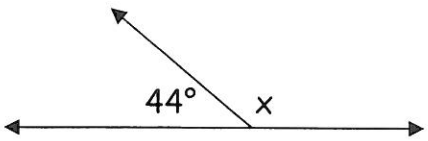
1.) 

$52 + x = 90$
$-52 \quad -52 \quad x = 38°$

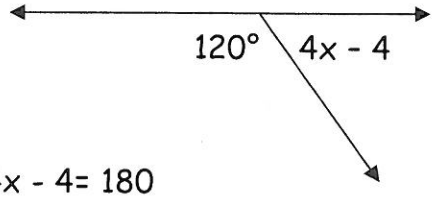
2.) 

$48 + x + 5 = 90$
$53° + x = 90$
$-53 \quad -53 \quad x = 37$

Missing angle = 42°

3.) 

$44 + x = 180$
$-44 \quad -44 \quad x = 136°$

4.) 

$120 + 4x - 4 = 180$
$116 + 4x = 180$
$-116 \quad -116$
$\frac{4x}{4} = \frac{64}{4}$
$x = 16$

Missing angle = 60°

7.1 Adjacent and Vertical Angles Teacher Notes

POD

Identify the angles as acute, right, or obtuse

1) Acute 2) obtuse

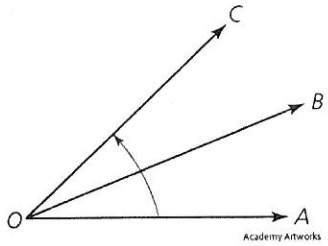
Objective:

Students will identify adjacent and vertical angles. Students will find missing measures in angles.

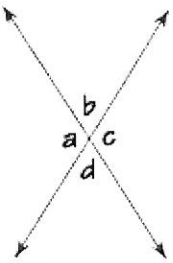
Essential Question: What can you conclude about the angles formed by two intersecting lines?

Vocabulary:

Adjacent Angles: angles that share a side



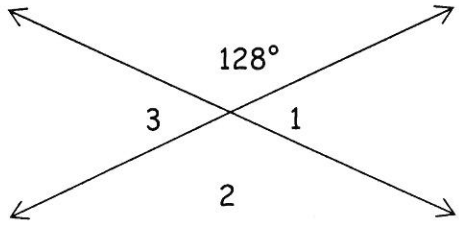
Vertical Angles: angles formed by two intersecting lines and are opposite. Vertical angles are congruent.



$\angle b \cong \angle d$

$\angle a \cong \angle c$

1.) Find the measure of $\angle 1$, $\angle 2$, and $\angle 3$.

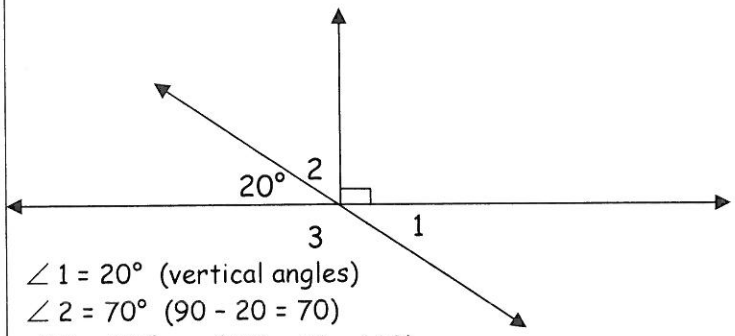


$\angle 1 =$ 52° (180 - 128 = 52)

$\angle 2 =$ 128°

$\angle 3 =$ 52° (vertical with $\angle 1$)

2.) Find the measure of $\angle 1$, $\angle 2$, and $\angle 3$

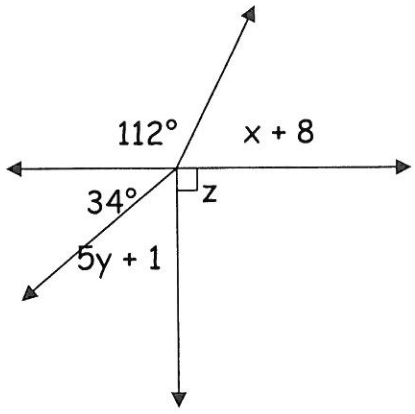


$\angle 1 = 20°$ (vertical angles)

$\angle 2 = 70°$ (90 - 20 = 70)

$\angle 3 = 160°$ (180 - 20 = 160)

3.) Find the value of x, y, and z.



$x + 8 + 112 = 180$

$x + 120 = 180$

$-120 \quad -120$

$x = 60°$

$5y + 1 + 34 = 90$

$5y + 35 = 90$

$-35 \quad -35$

$\frac{5y}{5} = \frac{55}{5}$

$y = 11°$ $z = 90°$

7.3 Triangles Teacher Notes

POD

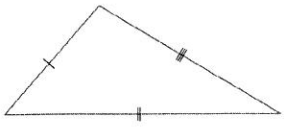
4) x = 6 and complimentary 5) x = 20 and supplementary

Objective: Students will classify triangles and find missing measures within a triangle.

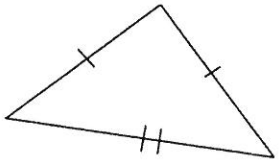
Essential Question: How can you construct triangles?

Vocabulary:

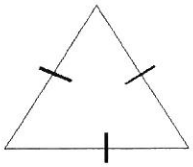
Classifying Triangles by Sides



Scalene Triangle
No congruent sides

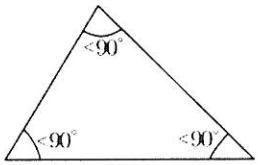


Isosceles Triangle
2 congruent sides

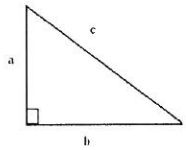


Equilateral Triangle
3 congruent sides

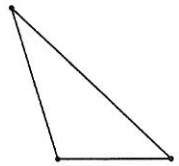
Classifying Triangles by Angles



Acute Triangle
3 acute angles



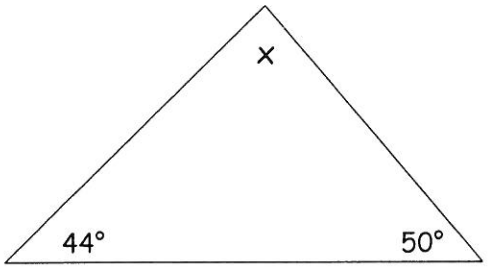
Right Triangle
1 right angle



Obtuse Triangle
1 obtuse angle

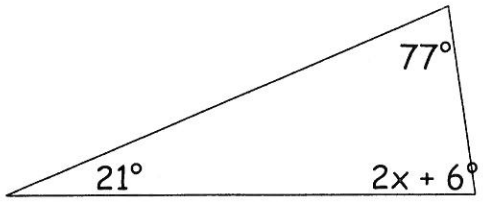
Find the value of the missing variable in each triangle.

1.)



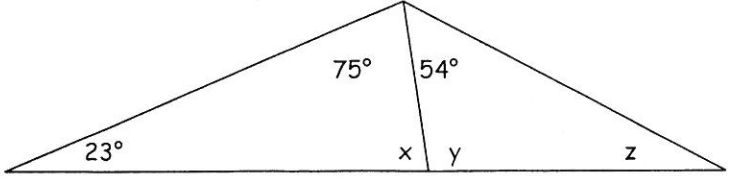
x + 44 + 50 = 180
x + 94 = 180
-94 -94
x = **86°**

2.)



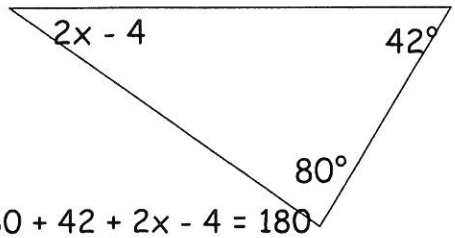
77 + 21 + 2x + 6 = 180
104 + 2x = 180
-104 -104
2x = 76
2 2
x = **38**
2(38) + 6 = **82°**

3.) Find ∠x, ∠y, and ∠z.



x = **82°** (Work: 180 - (75 + 23) = 82)

4.)



80 + 42 + 2x - 4 = 180
118 + 2x = 180
-118 -118

y = **98°** (Work: 180 - 82 = 98) z = **28°** (Work: 180 - (54 + 98) = 28)	$\frac{2x}{2} = \frac{62}{2}$ $x = 31$ $2(31) - 4 = 58°$

7.4 Quadrilaterals Teacher Notes

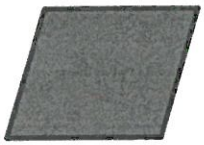
Essential Question: How can you classify quadrilaterals?
Objective: Students will learn how to identify and classify quadrilaterals

POD find the missing angle

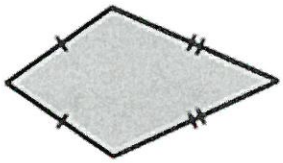
1) A triangle has an angle which measures 30° and another which measures 50°. What is the third angle measurement?_____

Classifying Quadrilaterals

Trapezoid: quadrilateral with exactly one pair of parallel sides

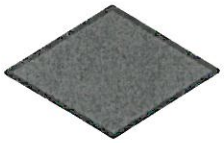


Parallelogram: quadrilateral with opposite sides that are parallel AND congruent

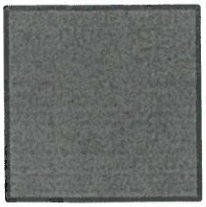


Kite: quadrilateral with TWO pairs of congruent adjacent sides and opposite sides that are NOT congruent

Rectangle: parallelogram with FOUR RIGHT ANGLES with opposite sides that are parallel and congruent



Rhombus: parallelogram with four congruent sides



Square: a parallelogram with four congruent sides and four right angles. Opposite sides are also parallel and congruent

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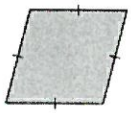
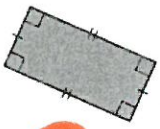
On Your Own

Now You're Ready Exercises 4–9

Classify the quadrilateral.

1. 

2. 

3. 

1) Rhombus 2) Trap. 3) Rectangle

Copy and complete using always, sometimes, or never.

4. A square is A a rhombus.
5. A parallelogram is S a rectangle.
6. A kite is N a square.
7. A trapezoid is N a square.

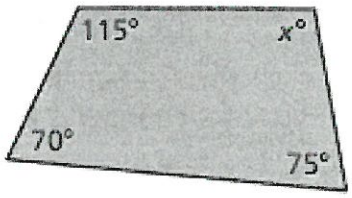
A) 4 7 A
8 S
9 N
10 N

Finding an Angle Measure of a Quadrilateral

The sum of the angle measures of a quadrilateral is 360°
How to find the value of a missing angle in a quadrilateral

1) Write an equation
2) Combine like terms
3) Subtraction Property of Equality (subtract from 360)
4) Simplify

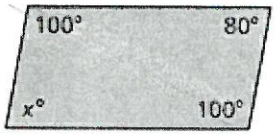
$115 + 70 + 75 + x = 360$
$260 + x = 360$
$-260 \quad -260$
$X = 100°$

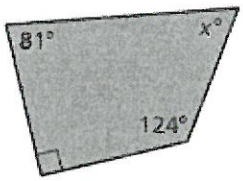


On Your Own

Now You're Ready Exercises 10–12 and 14–17

Find the value of x.

4. 

5. 

Write the equation first and then solve for x	Write the equation first, then solve for x
$100 + 80 + 100 + x = 360$ $280 + x = 360$ $-280 \quad -280$ $X = 80°$	$81 + 90 + 124 + x = 360$ $295 + x = 360$ $-295 \quad -295$ $X = 65°$

7.5 Scale Drawings Teacher Notes

POD

5) x = 123° 6) x = 50°

Objective: Students will use scale drawings to find actual measurements. Students will find scale factors.

Essential Question: How can you enlarge or reduce a drawing proportionally?

Vocabulary:

1.) Scale Drawing – an enlarged or reduced drawing of an object that is similar to the actual object (examples include maps or floor plans)

2.) Scale – a ratio that compares a length in a drawing to the corresponding length in the actual object

How to Solve Problems with Scale Drawings:

1.) Write the scale of the drawing as a ratio.

2.) Write another ratio that matches the same units as the first ratio.

3.) Solve the proportion using cross products.

4.) Label your answer with the appropriate units.

Example:

1.) Mrs. Hecker drew a map of the school gym. The gym was 60yd long. She used a scale of 2cm to 3yd. Find the length of her drawing.

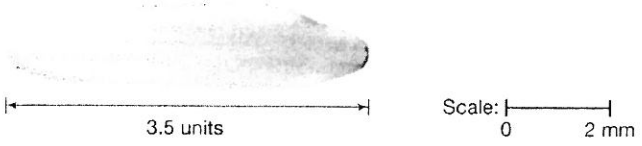
$$\frac{2cm}{3yds} = \frac{xcm}{60yds}$$

$$2 \cdot 60 = 3x$$

$$\frac{120}{3} = \frac{3x}{3}$$

$$x = 40 \text{ cm}$$

2.) Sam's scale drawing of a piece of rice is shown below. What is the actual length of the piece of rice?



$$\frac{1unit}{2mm} = \frac{3.5units}{xmm}$$

$$x = 3.5(2)$$

$$x = 7 \text{ mm}$$

3.) Kyle's scale drawing of his bedroom 16 cm long and 12.5 cm wide. If each 4 cm on the scale drawing equals 3 ft, how big is Kyle's bedroom?

$$\frac{4cm}{3ft} = \frac{16cm}{x}$$

$\frac{48}{4} = \frac{4x}{4}$

x = 12 ft long

$$\frac{4cm}{3ft} = \frac{12.5cm}{x}$$

$\frac{37.5}{4} = \frac{4x}{4}$

x = 9.375 ft wide