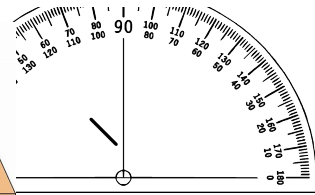




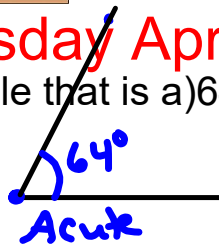
Warm Up Gr. 6

Date: Apr. 4, 2019

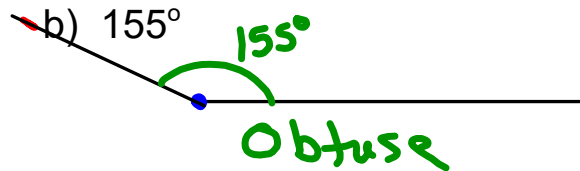


Test Thursday April 11

a) Draw an angle that is a) 64°



b) 155°



b) If two inside angles of a triangle is 73° , 121° what is the measure of the third angle? (Show work)

3 Angle in the \triangle
add to 180°

$121 + 73 = 194^\circ$

Bigger than \triangle
angle

Won't make a \triangle .

Practice

1. Draw 3 different triangles on dot paper. Measure and record each angle.
Find the sum of the measures of the angles for each triangle.

Many solutions

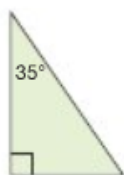
2. Determine the measure of the third angle without measuring.

a)

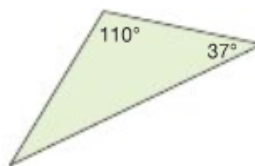


$$\begin{aligned} \text{a) Missing angle} &= 180^\circ - 50^\circ - 75^\circ \\ &= 180^\circ - 125^\circ \\ &= 55^\circ \end{aligned}$$

b)



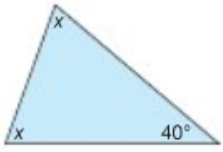
c)



$$\begin{aligned} \text{b) Missing angle} &= 180^\circ - 35^\circ - 90^\circ \\ &= 180^\circ - 125^\circ \\ &= 55^\circ \end{aligned}$$

$$\begin{aligned} \text{c) Missing angle} &= 180^\circ - 37^\circ - 110^\circ \\ &= 180^\circ - 147^\circ \\ &= 33^\circ \end{aligned}$$

3. The two unknown angles in each triangle below are equal.
 Determine the measure of each unknown angle without measuring.
 Explain the strategy you used.

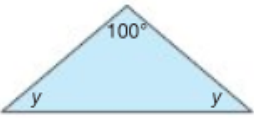
a) 

$180^\circ - 40^\circ$
 140°

$x + x = 140$

$140 \div 2 = 70$

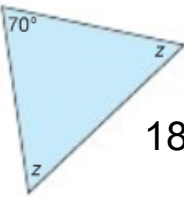
$70^\circ = x$

b) 

$180^\circ - 100^\circ$
 $= 80^\circ$

Sum of $y + y = 80^\circ$
 $40 + 40$

$80^\circ \div 2 = 40^\circ$
 so $y = 40^\circ$

c) 

$180^\circ - 70^\circ$
 $= 110^\circ$

Sum of $z + z = 110^\circ$
 $55^\circ + 55^\circ$

$110^\circ \div 2 = 55^\circ$
 so $z = 55^\circ$

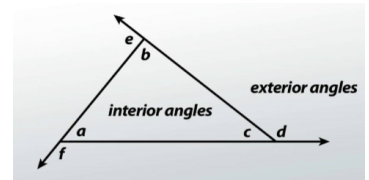
4. Two angles of a triangle are given.
 Find the measure of the third angle.
- a) $55^\circ, 105^\circ$ b) $45^\circ, 90^\circ$
 c) $30^\circ, 60^\circ$ d) $25^\circ, 125^\circ$

a) Missing angle = $180^\circ - 55^\circ - 105^\circ$ b) Missing angle = $180^\circ - 45^\circ - 90^\circ$
 $= 180^\circ - 160^\circ$ $= 180^\circ - 135^\circ$
 $= 20^\circ$ $= 45^\circ$

c) Missing angle = $180^\circ - 30^\circ - 60^\circ$ d) Missing angle = $180^\circ - 25^\circ - 125^\circ$
 $= 180^\circ - 90^\circ$ $= 180^\circ - 150^\circ$
 $= 90^\circ$ $= 30^\circ$

The inside angles of a triangle or any polygon is called the interior angles

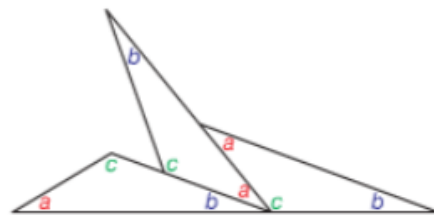
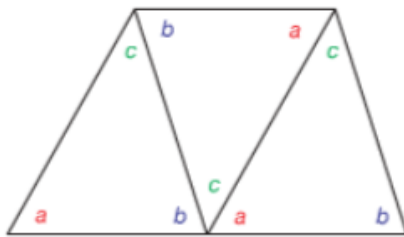
The symbol $\angle A$ refers to angel A



MUST STUDY

The sum of the angles in a triangle is 180° (a straight angle)

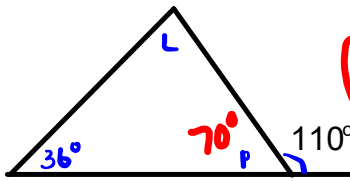
$$\angle a + \angle b + \angle c = 180^\circ$$



These triangles are not drawn to scale. NO protractors

Find the measure of the missing angles (show work and explain your strategy used)

a)



Step 1

$$P + 110^\circ = 180$$

Straight angle = 180°

$$180^\circ - 110^\circ$$

$$P = 70^\circ$$

Step 2

Angle Sum of Δ

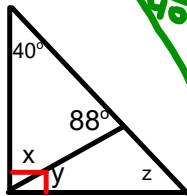
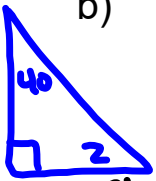
$$\text{Given} = 36^\circ + 70^\circ = 106^\circ$$

$$180^\circ - \text{Given}$$

$$180^\circ - 106^\circ$$

$$L = 74^\circ$$

b)



Step 2

$$x = 180^\circ - \text{Given}$$

$$\text{Given } (40^\circ + 88^\circ)$$

$$x = 180^\circ - 128^\circ$$

$$x = 52^\circ$$

Step 3

$$x + y = 90^\circ \text{ (right } \angle)$$

$$52^\circ + y = 90^\circ$$

$$\text{hint } 90 - 52 = 38^\circ$$

$$y = 38^\circ$$

Step 1
 Given $90^\circ + 40^\circ = 130^\circ$
 Need 180° for Δ
 $180^\circ - \text{Given}$
 $180 - 130^\circ$
 $z = 50^\circ$

Class/Homework

Angle sum of $\Delta = 180^\circ$

Page 148-149

Don't draw just find angles

Third Angle

$180^\circ - \text{Given}$

#4, ,6,7,8,9

Must show work

Test Thursday April 11

6a) obtuse + obtuse + _____ = 180°

$91^\circ + 91^\circ$

182°

no 3rd angle

Can't have more than 1 obtuse



too big for Δ

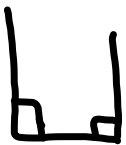
b) right + right + _____ = 180°

$90 + 90$

180°

Not an angle

So can't make a Δ with 2 \perp



Right angle

c) \triangle acute + acute + acute = 180°
 $60^\circ + 60^\circ + 60^\circ$

Can make a Δ with 3 acute angles

4, 6, 7, 8, 9



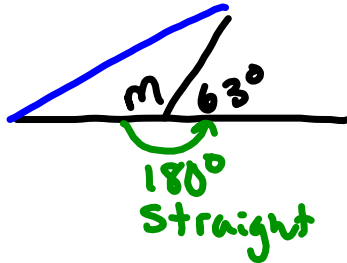
Step 2

$$\begin{aligned} \text{Given } & 117^\circ + 34^\circ \\ & = 151^\circ \end{aligned}$$

3rd angle in Δ

$$180^\circ - 151^\circ$$

$$\boxed{n = 29^\circ}$$



Step 1

$$m + 63^\circ = 180^\circ$$

$$\begin{aligned} m &= 180^\circ - 63^\circ \\ &= 117^\circ \end{aligned}$$

Practice

- Draw 3 different triangles on dot paper. Measure and record each angle. Find the sum of the measures of the angles for each triangle.

Many solutions

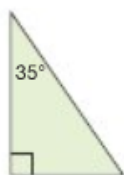
- Determine the measure of the third angle without measuring.

a)

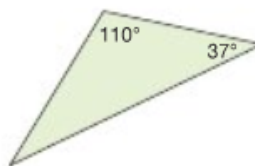


$$\begin{aligned} \text{a) Missing angle} &= 180^\circ - 50^\circ - 75^\circ \\ &= 180^\circ - 125^\circ \\ &= 55^\circ \end{aligned}$$

b)



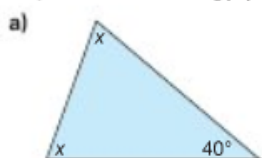
c)



$$\begin{aligned} \text{b) Missing angle} &= 180^\circ - 35^\circ - 90^\circ \\ &= 180^\circ - 125^\circ \\ &= 55^\circ \end{aligned}$$

$$\begin{aligned} \text{c) Missing angle} &= 180^\circ - 37^\circ - 110^\circ \\ &= 180^\circ - 147^\circ \\ &= 33^\circ \end{aligned}$$

3. The two unknown angles in each triangle below are equal.
 Determine the measure of each unknown angle without measuring.
 Explain the strategy you used.



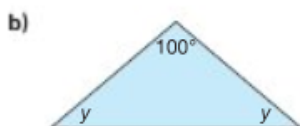
$$180^\circ - 140^\circ$$

$$= 40^\circ$$

$$\text{Sum of } x + x = 40^\circ$$

$$40^\circ \div 2 = 20^\circ$$

$$\text{so } x = 20^\circ$$



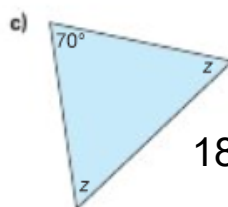
$$180^\circ - 100^\circ$$

$$= 80^\circ$$

$$\text{Sum of } y + y = 80^\circ$$

$$80^\circ \div 2 = 40^\circ$$

$$\text{so } y = 40^\circ$$



$$180^\circ - 70^\circ$$

$$= 110^\circ$$

$$\text{Sum of } z + z = 110^\circ$$

$$110^\circ \div 2 = 55^\circ$$

$$\text{so } z = 55^\circ$$

4. Two angles of a triangle are given.
 Find the measure of the third angle.

- a) $55^\circ, 105^\circ$ b) $45^\circ, 90^\circ$
 c) $30^\circ, 60^\circ$ d) $25^\circ, 125^\circ$

a) Missing angle = $180^\circ - 55^\circ - 105^\circ$ b) Missing angle = $180^\circ - 45^\circ - 90^\circ$
 $= 180^\circ - 160^\circ$ $= 180^\circ - 135^\circ$
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c) Missing angle = $180^\circ - 30^\circ - 60^\circ$ d) Missing angle = $180^\circ - 25^\circ - 125^\circ$
 $= 180^\circ - 90^\circ$ $= 180^\circ - 150^\circ$
 $= 90^\circ$ $= 30^\circ$

5. Vegreville, Alberta, is home to the world's largest known Ukrainian egg. It has 1108 triangular pieces with three angles of equal measure. Find the measure of each angle. Explain your strategy.



6. Is it possible for a triangle to have:
- a) more than 1 obtuse angle?
 - b) 2 right angles?
 - c) 3 acute angles?
- Explain your thinking.
Use pictures and words.



7. Find the measure of the third angle in each triangle described below. Then, draw the triangle.

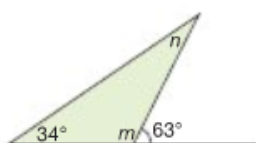
Explain how you found each measure.

- a) A triangle with two angles measuring 65° and 55°
- b) A triangle with two equal angles; each measures 40°
- c) A right triangle with a 70° angle



8. Find the measures of the angles labelled m and n . Explain the strategy you used.

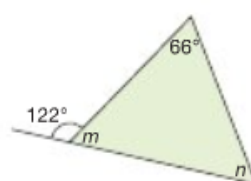
a)



b)

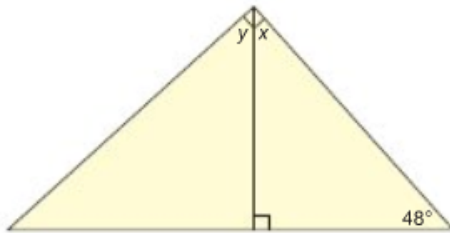


c)

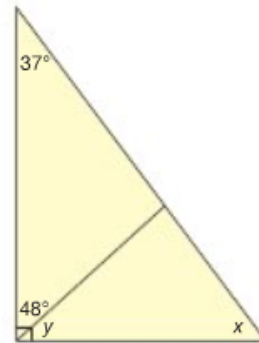


9. Find the measures of the angles labelled x and y . Show your work. Explain the strategy you used.

a)



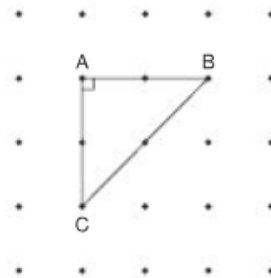
b)



10. Use a geoboard and geobands or square dot paper.

Construct $\triangle ABC$.

- Find the unknown angle measures. Check your answers by measuring with a protractor.
- Extend AB 1 unit right to D . Extend AC 1 unit down to E . Join DE .
- Predict the measure of each angle in the new triangle. Use a protractor to check. Record your work.
- Repeat steps b and c two more times.
- What do you notice about all the triangles you created? Explain.



Attachments

Worksheet Maeasuring Angles with Protractors.pdf