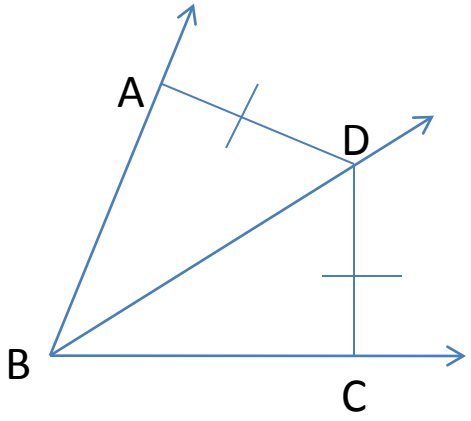
Angle Bisector and Perpendicular Bisector Theorem

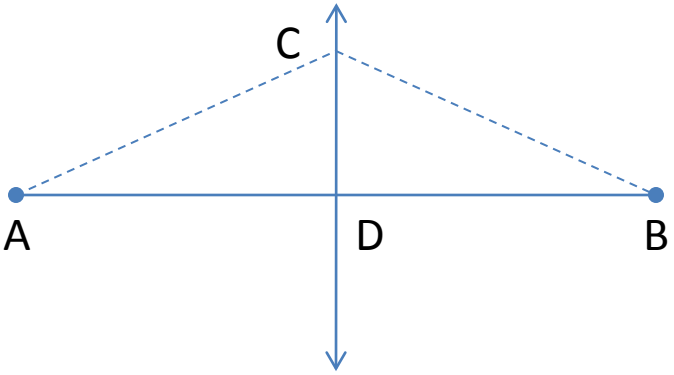
If $m\angle ABD = 4x - 10$ and $m\angle CBD = 7x - 31$, find $m\angle CBD$



1.

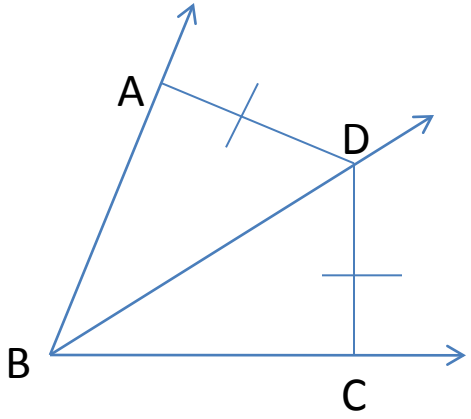
CD is the Perpendicular Bisector of AB

If $AC = 11x - 50$ and $CB = 3x + 30$, find AC



2.

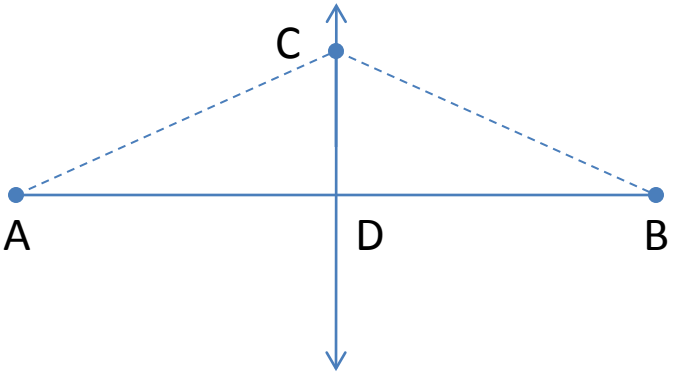
If $m\angle ABD = 3x + 15$ and $m\angle CBD = 4x + 4$, find $m\angle ABC$



3.

CD is the Perpendicular Bisector of AB

If $AC = 6x + 9$ and $CB = 2x + 33$, find CB



4.

Angle Bisector and Perpendicular Bisector Theorem (A)

$m\angle CBD = 18°$

1.

$AC = 60$

2.

$m\angle ABC = 96°$

3.

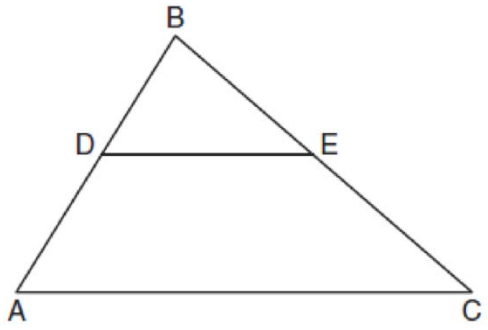
$CB = 45$

4.

Triangle Midsegment Theorem #1

D is the Midpoint of AB and E is the Midpoint of BC

If $DE = 4x - 9$ and $AC = 3x + 22$, find DE

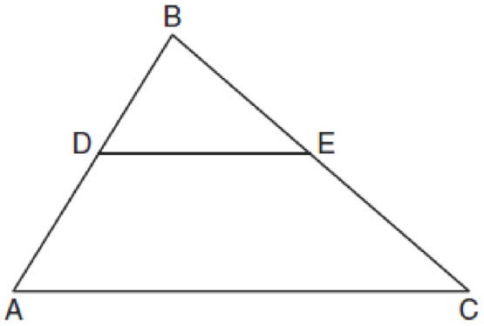


1.

D is the Midpoint of AB and E is the Midpoint of BC

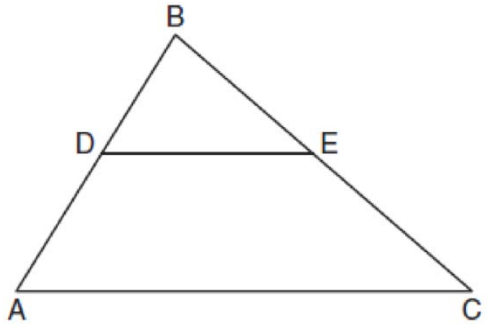
If $DE = 7x + 1$ and $AC = 6x + 18$, find AC

2.



D is the Midpoint of AB and E is the Midpoint of BC

If $DE = 2x - 16$ and $AC = 3x - 3$, find DE

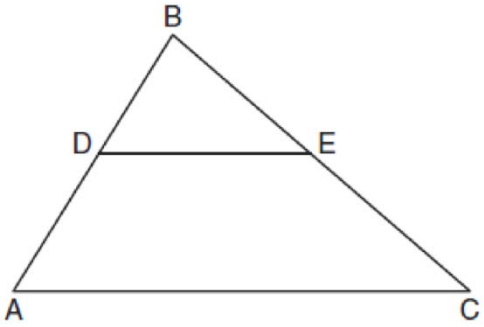


3.

D is the Midpoint of AB and E is the Midpoint of BC

If $DE = 8x - 10$ and $AC = 10x + 40$, find AC

4.



Triangle Midsegment Theorem #1 (A)

1. $DE = 23$

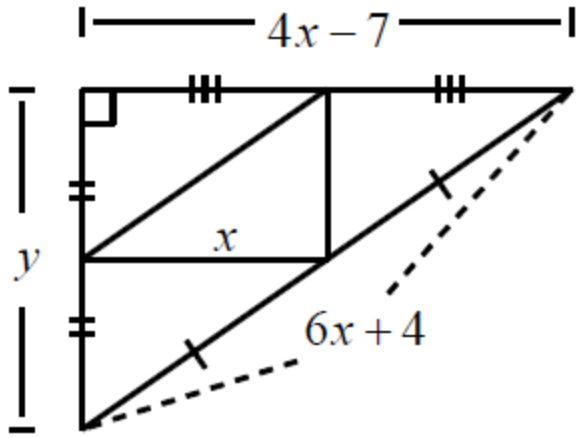
2. $AC = 30$

3. $DE = 42$

4. $AC = 140$

Triangle Midsegment Theorem #2

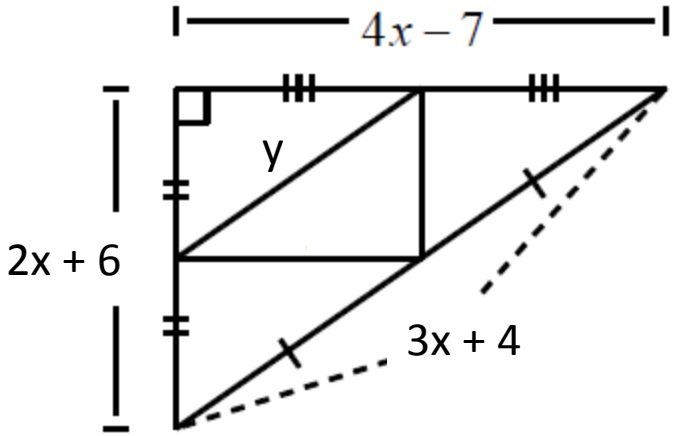
If the Perimeter of the Large Triangle is 56, find *y*.



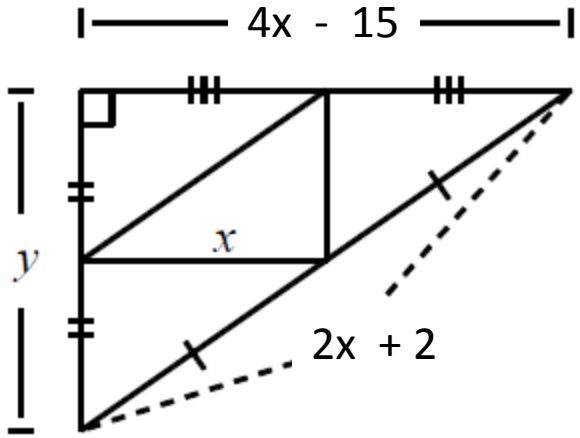
1.

If the Perimeter of the Large Triangle is 30, find *y*.

2.



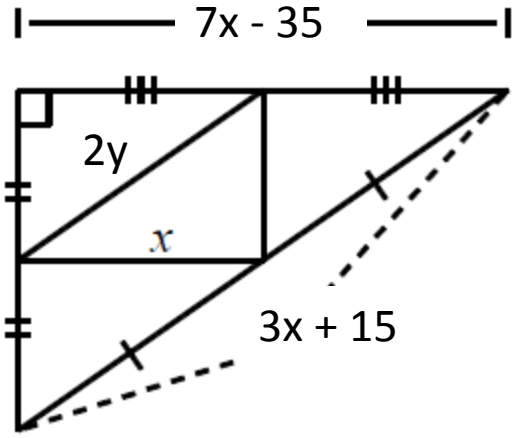
If *y = 8* , find the perimeter of the Smaller Triangle



3.

Find x and *y*.

4.



Triangle Midsegment Theorem #2 (A)

$y = 24$

1.

$y = 6.5$

2.

$P = 20$

3.

$x = 7$

$y = 9$

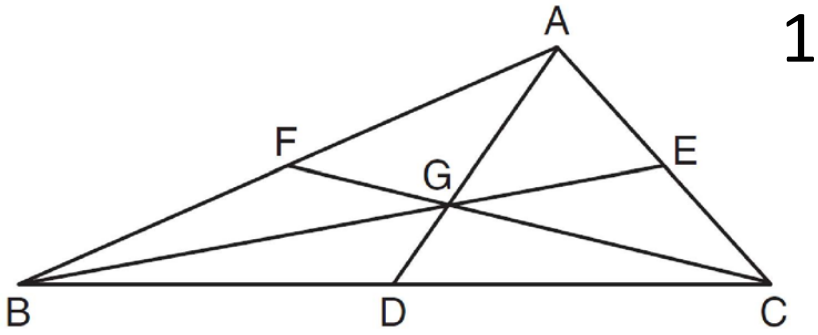
4.

Two-Thirds (Centroid) Theorem

Given: AG = 14, FG = 10, EB = 36

Find: GD, AD, CG, CF, EG, BG

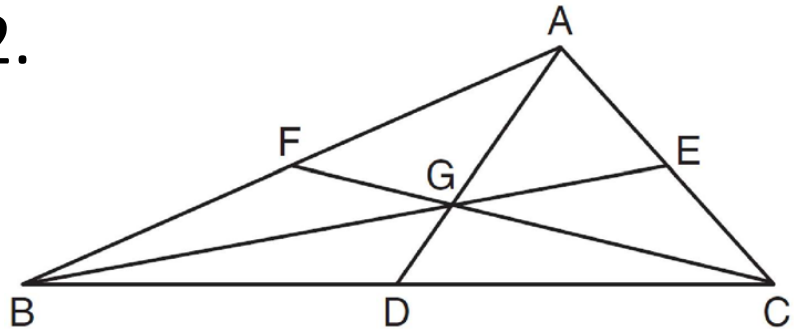
1.



Given: AD = 15, GE = 19, FG = 6

Find: AG, GD, BG, BE, CF, CG

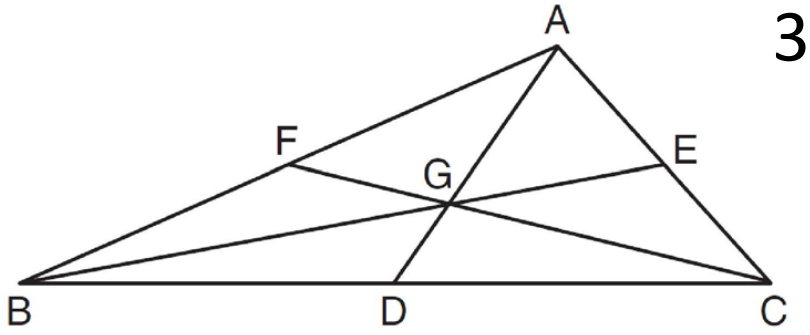
2.



Given: CF = 9, GD = 2, BG = 16

Find: CG, GF, AG, AD, GE, BE

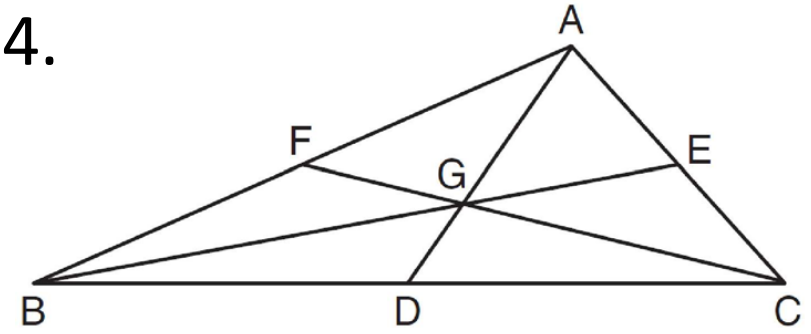
3.



Given: BE = 27, DG = 4, CG = 10

Find: BG, GE, GA, DA, CF, GF

4.



Two-Thirds (Centroid) Theorem (A)

GD = 7, AD = 21, CG = 20,

CF = 30, EG = 12, BG = 24

1.

AG = 10, GD = 5, BG = 38,

BE = 57, CF = 18, CG = 12

2.

CG = 6, GF = 3, AG = 4,

AD = 6, GE = 8, BE = 24

3.

BG = 18, GE = 9, GA = 8,

DA = 12, CF = 15, GF = 5

4.

Perpendicular/Angle Bisectors, Medians, and Altitudes

1. The vertices of the triangle in the diagram below are *A(7,9), B(3,3), and C(11,3).*

   What are the coordinates of the centroid of ΔABC?

2. The vertices of the triangle in the diagram below are *A(0,0), B(4,0), and C(4,-3).*

   Find the center of the circle you can circumscribe about ΔABC.

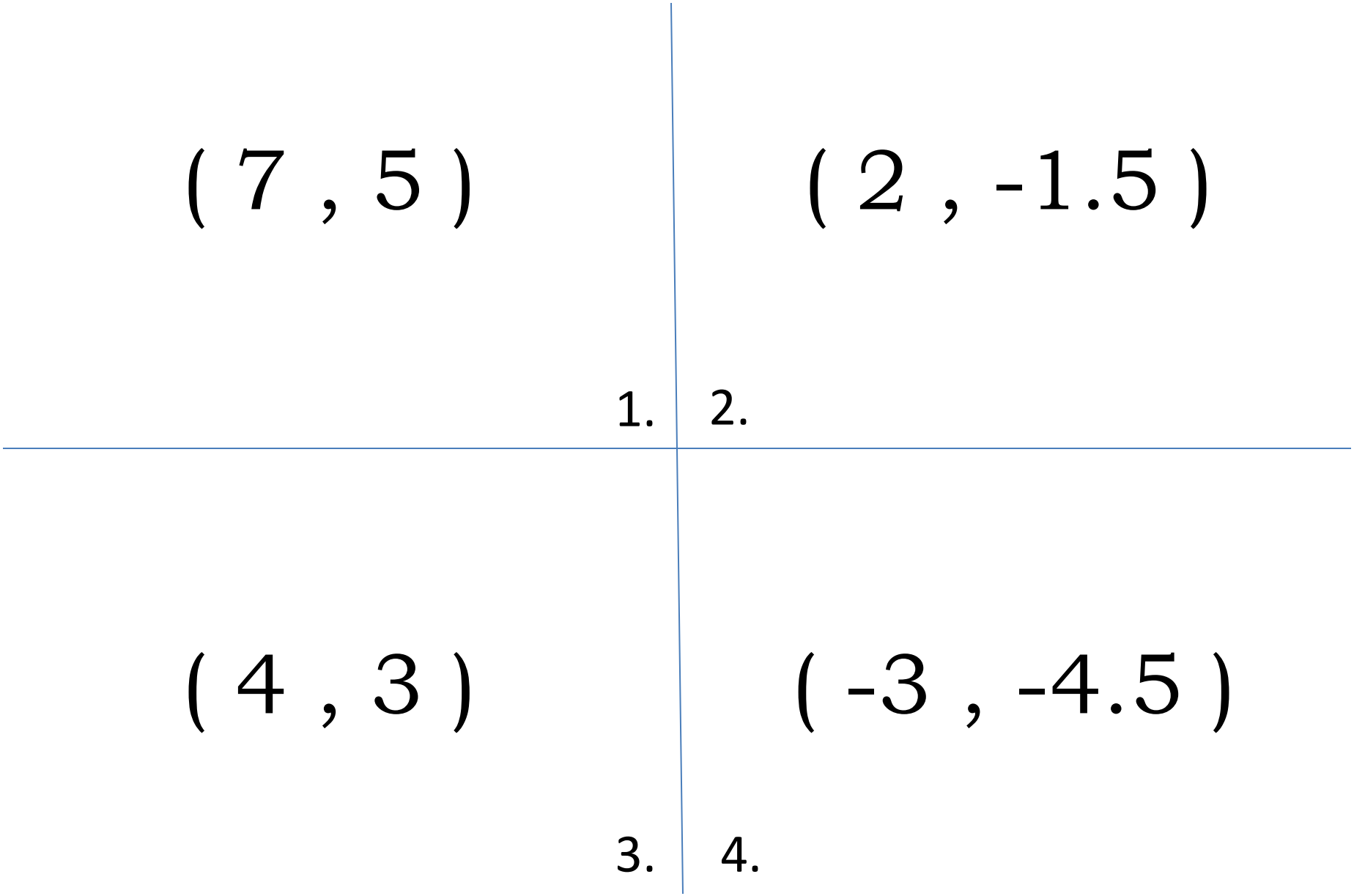
3. The vertices of the triangle in the diagram below are *A(-2,5), B(6,5), and C(4,-1).*

   What are the coordinates of the orthoceter of ΔABC?

4. The vertices of the triangle in the diagram below are *A(-1,-2), B(-5,-2), and C(-1,-7).*

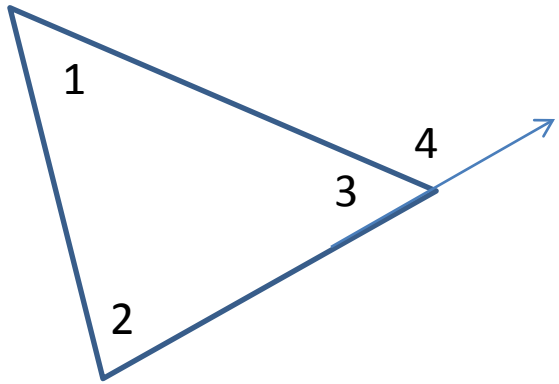
   Find the center of the circle you can circumscribe about ΔABC.

Perpendicular/Angle Bisectors, Medians, and Altitudes (A)

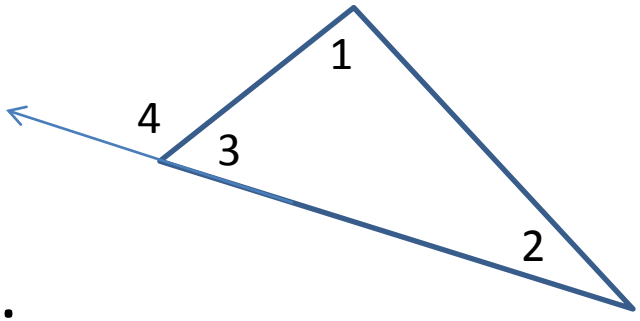


Triangle Exterior Angle Theorem

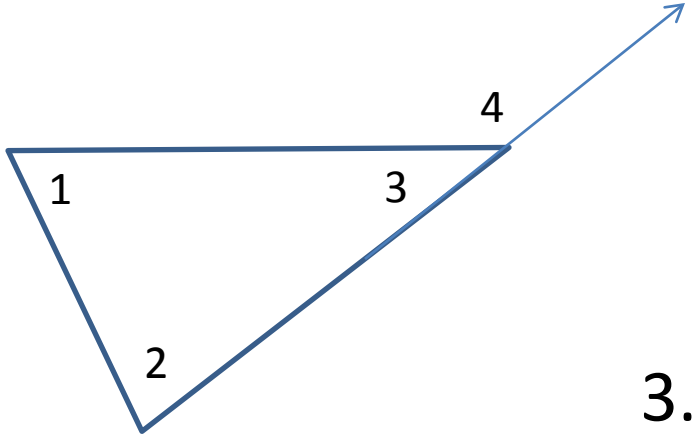
1. If $m\angle 1 = 4x$, $m\angle 2 = 60$, and $m\angle 3 = 6x$ find $m\angle 4$



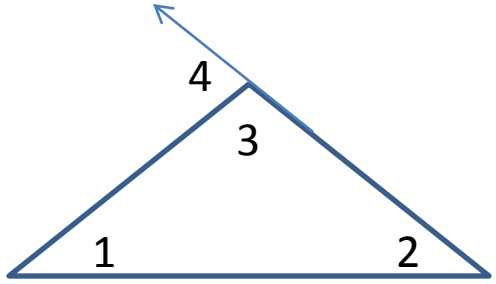
2. If $m\angle 1 = x + 40$, $m\angle 2 = 4x - 5$, and $m\angle 4 = 6x + 20$ find $m\angle 1$



3. If $m\angle 1 = 2x + 17$, $m\angle 2 = 3x$, and $m\angle 4 = 7x - 33$ find $m\angle 4$



4. If $m\angle 3 = 106$, $m\angle 2 = 2x - 1$, and $m\angle 4 = 6x + 2$ find $m\angle 1$



Triangle Exterior Angle Theorem (A)

1. $m\angle 4 = 108°$

2. $m\angle 1 = 55°$

3. $m\angle 4 = 142°$

4. $m\angle 4 = 51°$

Triangle Angle-Side Relationship

1.

In Δ*ABC, m∠A = 90, m∠B = 55, and m∠C = 35.*

a) List the sides in order from smallest to largest.

b) Classify the triangle by its sides.

2.

In triangle *ABC, m∠B = 140 and m∠C = 20.*

a) List the sides in order from smallest to largest.

b) Classify the triangle by its angles.

3.

In Δ *PQR, PQ = 8, QR = 12, and RP = 13.*

a) List the angles in order from smallest to largest.

b) Classify the triangle by its sides.

4.

In Δ*ABC,* measure of *∠ACB = 70° and the* measure of *∠ABC = 65°.*

a) List the sides in order from smallest to largest.

b) Classify the triangle by its angles.

Triangle Angle-Side Relationship (A)

1.

a) *AB*, AC, BC

b) Scalene Triangle because all angles are different measures therefore all sides will be different measure.

2.

a) AB = BC, AC

b) Obtuse Triangle because it contains an angle greater than 90°.

3.

a) <*R*, <P, <Q

b) Scalene Triangle because all sides are different measures therefore all sides will be different measure.

4.

a) *BC*, AC, AB

b) Acute Triangle because all angles are less than 90°.

Triangle Inequality Theorem

Sara is building a triangular pen for her pet rabbit. If two of the sides measure 8 feet and 15 feet, write an inequality to determine the possible length of the third side.

1.

If the lengths of two sides of a triangle are 4 and 10, what could be the length of the third side?

2.

José wants to build a triangular pen for his pet rabbit. He has three lengths of boards already cut that measure 7 feet, 8 feet, and 16 feet. Explain why José cannot construct a pen in the shape of a triangle with these sides.

3.

Jesse is building a triangular pen for her pet squirrel. If two of the sides measure 10 feet and 20 feet, write an inequality to determine the possible length of the third side.

4.

Triangle Inequality Theorem (A)

1. $7 < x < 23$

2. $6 < x < 14$

3. 7 + 8 = 15 and the sum of the two shorter sides of a triangle must be greater than the third side.

4. $10 < x < 30$