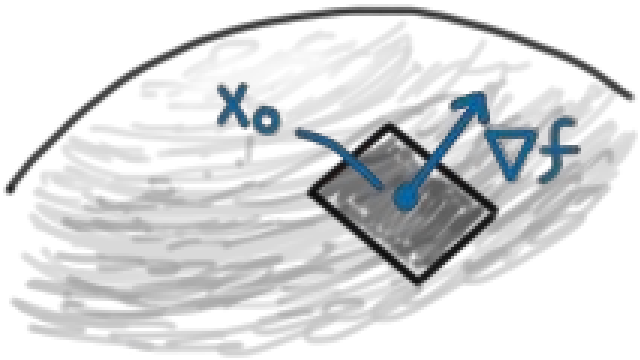


$$\nabla f(x_0)\cdot(x-x_0)=0$$

Geometry - Pisa of Knowledge IA

Name _____

Date _____

Numerical ___ / 100
Alphabetical _____

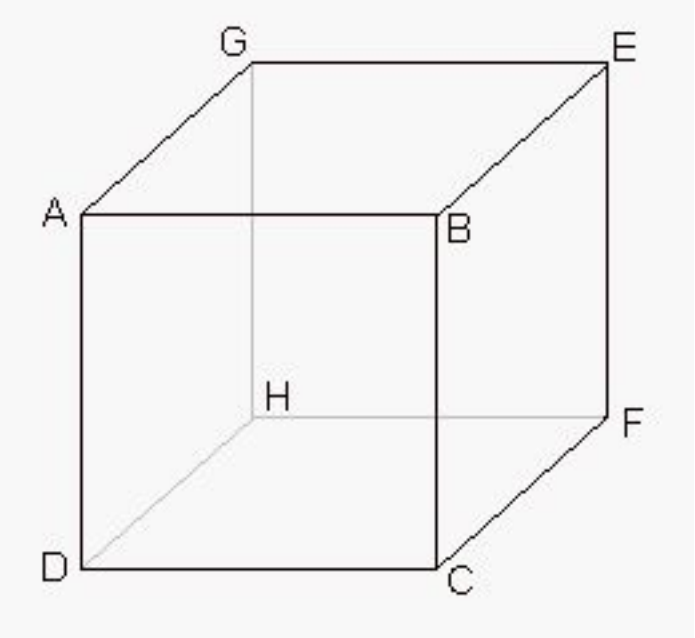
NOTE

Test must be submitted by 7:00 PM of 12/6/15 or you will be forced to drop the course

Chapter *I* Section *I* – **Points, Lines, & Planes**

Refer to the following diagram in answering **1-5**

Question 1



a) Name 2 planes that intersect in HF.

_____

b) Are the points A, B, C and D collinear?

_____

c) Are the points A, B, C and D coplanar?

_____

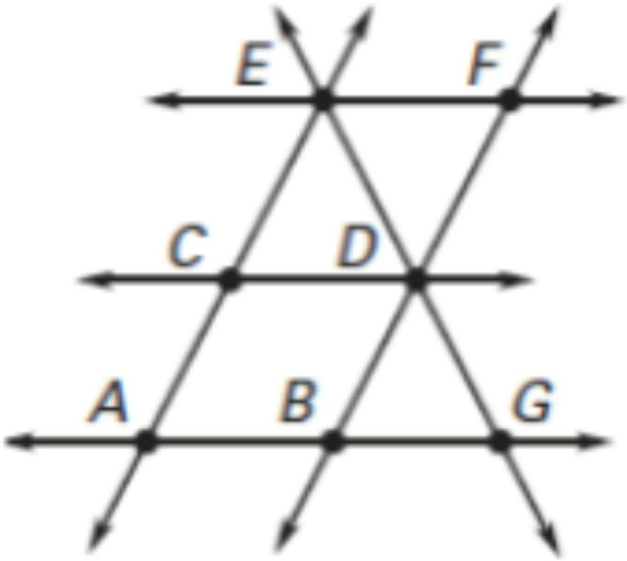
d) Name 2 planes that do not intersect.

_____

e) Name 3 lines that intersect at C.

_____

Question 2



a) Point A lies on line m

TRUE FALSE

b) B, C and D are collinear

TRUE FALSE

c) Are the points A, B, C and D coplanar?

TRUE FALSE

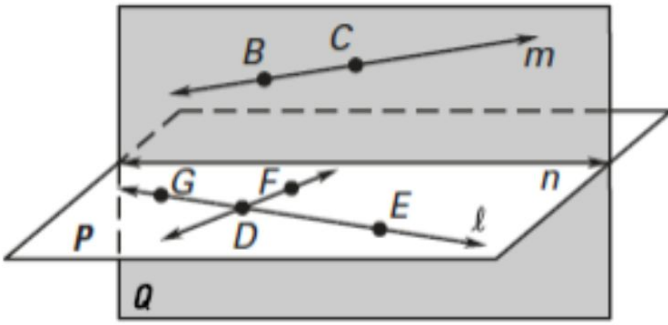
d) Name 2 planes that do not intersect.

TRUE FALSE

e) Name 3 lines that intersect at C.

TRUE FALSE

Question 3
Utilize the following diagram to the right to answer A-E



A) Name **three** (3) points that are *Collinear*

B) Name **two** (2) lines that are *Coplanar*

C) Name **three** (3) points that are *not Collinear*

D) Name **four** (4) points that are *not Coplanar*

For Q3 A-E, sketch each figure described

A) Two lines that lie in a plane and intersect at a point.

B) Two planes that intersect in a line.

C) Two planes that do not intersect.

D) A line that intersects a plane at a point.

Question 4
Define the following terms

Term	Draw	Definition
Point		
Line		
Line Segment		
Ray		

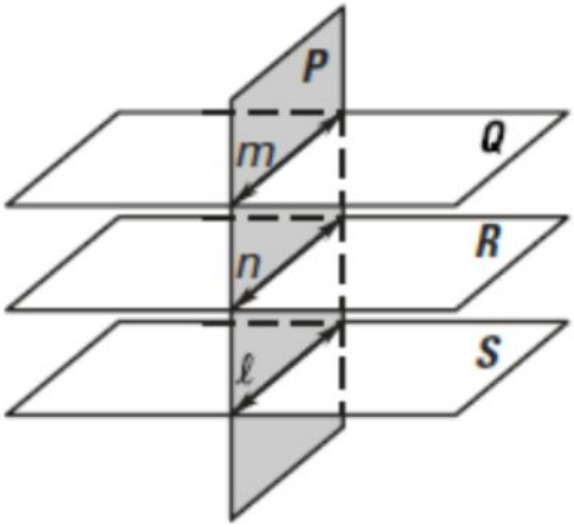
Question 5
Define the following terms

Term	Draw	Definition
Co-Planar		
Co-Linear		
Intersection		
Plane		
Skew		

Chapter *I* Section *II* – **Terminology**

Decide whether the statement is **true** or **false**. *Justify* your answer

Question 1



Planes Q and R intersect at line n.

TRUE FALSE

Planes P and Q intersect at line m.

TRUE FALSE

Planes R and S do not appear to intersect.

TRUE FALSE

Planes S and P do not appear to intersect.

TRUE FALSE

Lines n and appear to intersect.

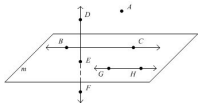
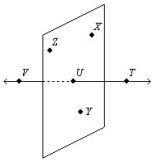
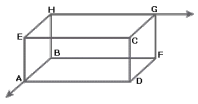
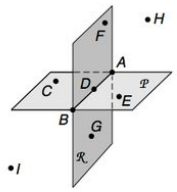
TRUE FALSE

Planes Q and S intersect at line m.

TRUE FALSE

Question 2

Define the following terms

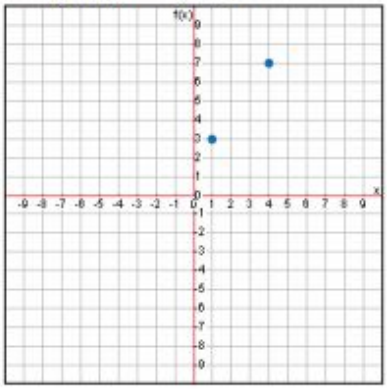
Diagram	Properties	Figure Name
		
		
		
		

Chapter *I* Section *III* - **Distance Formula**

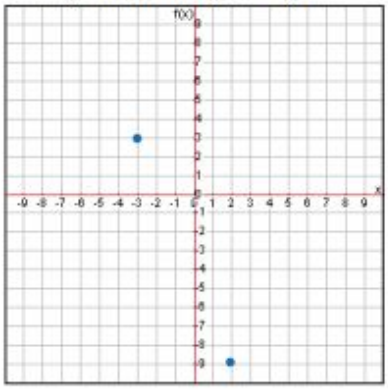
Utilize the Distance Formula in order to solve the following:

Question 1

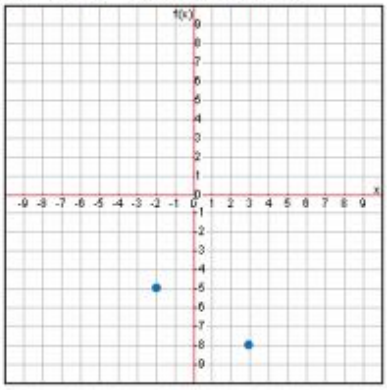
1. $(1, 3)$ and $(4, 7)$



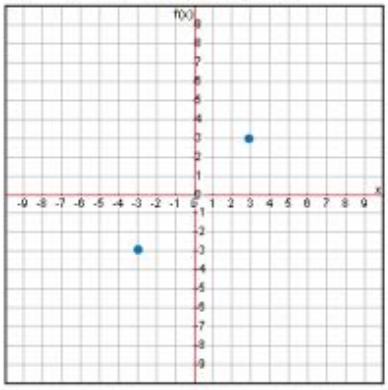
2. $(-3, 3)$ and $(2, -9)$



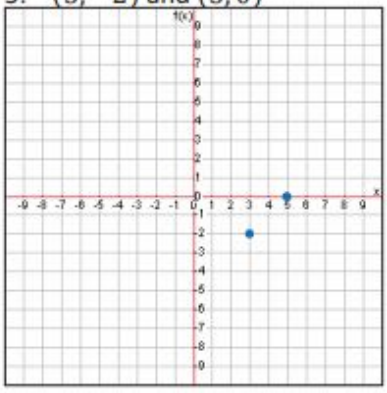
3. $(-2, -5)$ and $(3, -8)$



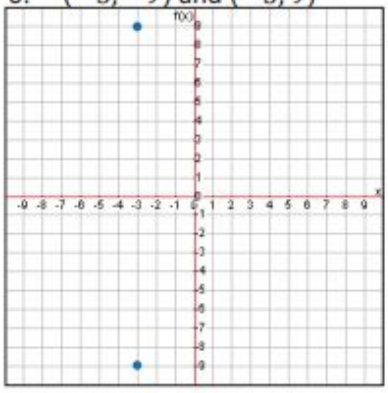
4. $(-3, -3)$ and $(3, 3)$



5. $(3, -2)$ and $(5, 0)$



6. $(-3, -9)$ and $(-3, 9)$



Question 2

Find the distance by utilizing both the distance formula & a graph

a) (2, 1) and (3, -3)

b) (4, -2) and (7, 2)

c) (1,1) and (7,9)

d) (-8,2) and (6, 2)

e) (-5, -3) and (6,6)

f) (-5, 4) and (7, 3)

Question 3

Derive both the distance formula for *n* dimensions and the 2-D default version and elaborate on each step of the process

Chapter ***II*** Section ***I*** - **Angles**

Utilize the Distance Formula in order to solve the following:

Question 1

Angle Type	Draw Example	Describe Properties
Acute Angle		
Straight Angle		
Obtuse Angle		
Right Angle		

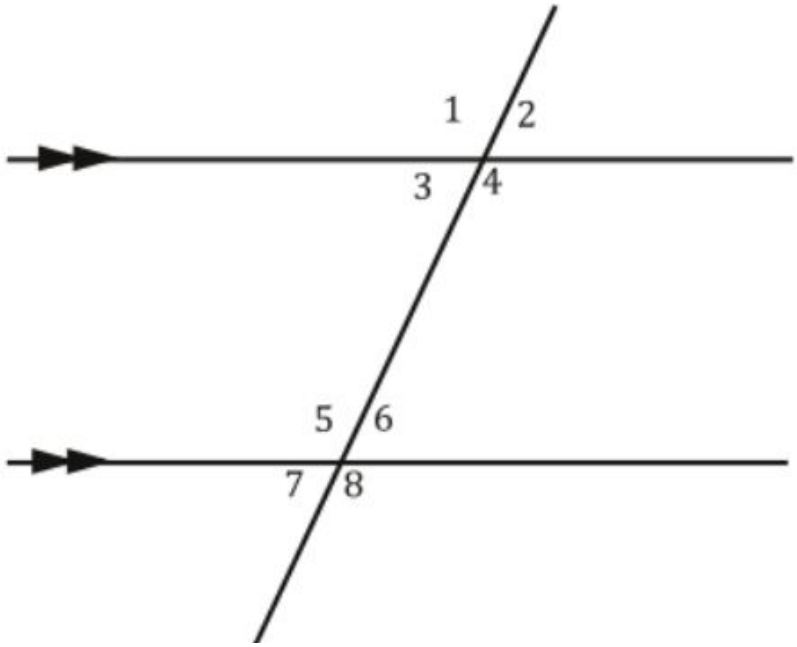
Question 2

Angle Type	Draw Example	Describe Properties
Congruent Angles		
Complementary Angle		
Supplementary Angle		
Vertical Angle		
Adjacent Angle		
Angle Bisector		
Angle Addition Postulate		

Chapter ***II*** Section ***II*** – **Parallel Lines & Transversals**

Utilize your knowledge of transversal lines to answer the following:

Question 1



1. ∠1 and ∠5 are...

A. Corresponding
B. Alternate Interior
C. Alternate Exterior
D. Consecutive

2. ∠8 and ∠4 are...

A. Corresponding
B. Alternate Interior
C. Alternate Exterior
D. Consecutive

3. ∠2 and ∠7 are...

A. Corresponding
B. Alternate Interior
C. Alternate Exterior
D. Consecutive

4. ∠3 and ∠6 are...

A. Corresponding
B. Alternate Interior
C. Alternate Exterior
D. Consecutive

5. ∠6 and ∠4 are...

A. Corresponding
B. Alternate Interior
C. Alternate Exterior
D. Consecutive

6. ∠2 and ∠6 are...

A. Corresponding
B. Alternate Interior
C. Alternate Exterior
D. Consecutive

7. ∠4 and ∠5 are...

A. Corresponding
B. Alternate Interior
C. Alternate Exterior
D. Consecutive

8. ∠1 and ∠8 are...

A. Corresponding
B. Alternate Interior
C. Alternate Exterior
D. Consecutive

9. ∠3 and ∠5 are...

A. Corresponding
B. Alternate Interior
C. Alternate Exterior
D. Consecutive

10. ∠4 and ∠8 are...

A. Corresponding
B. Alternate Interior
C. Alternate Exterior
D. Consecutive

Great Job, these are tough to remember which is which. If you are struggling, go back and try to memorize what each one looks like. (like remembering a picture) If you do that these will become very easy. Let's do some more!

Question 2

Match each term with the appropriate diagram

_____1. alternate interior angles

_____2. corresponding angles

_____3. alternate exterior angles

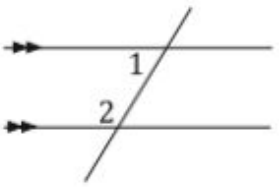
_____4. complementary angles

_____5. vertical angles

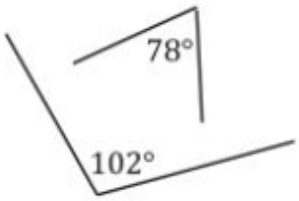
_____6. supplementary angles

_____7. linear pair

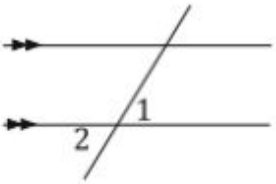
A.



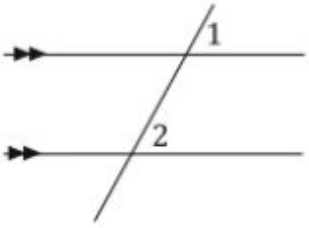
B.



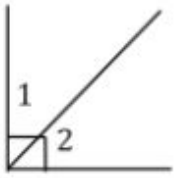
C.



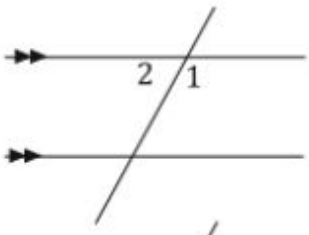
D.



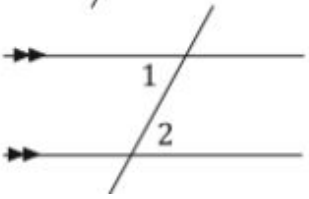
E.



F.



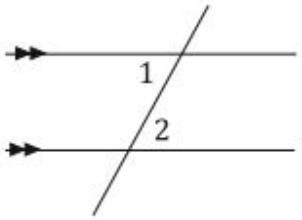
G.



Question 3

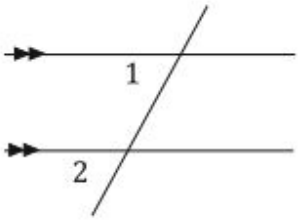
Let's take it up a notch... for each, write the angle relationship you see in the picture and a statement of whether the angles are equal or add to 180°.

1. This one is done for you so you know what to do.

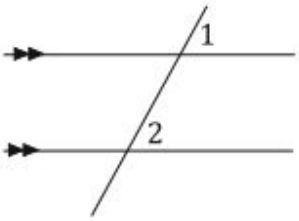


Alternate interior, m∠1=m∠2

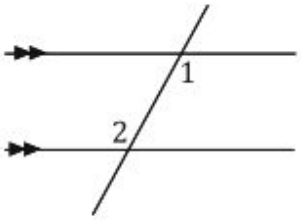
2.



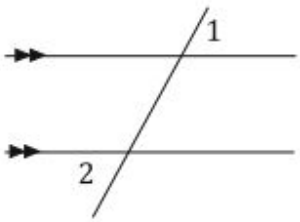
3.



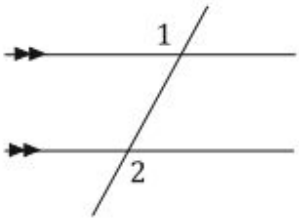
4.



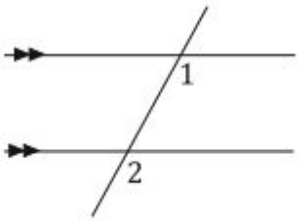
5.



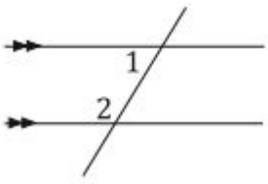
6.



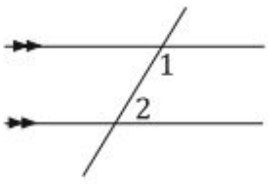
7.



8.



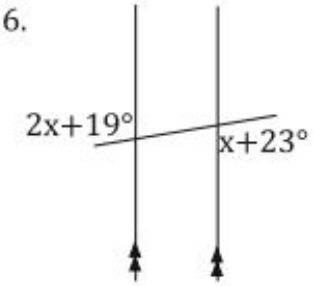
9.



Question 4

On these state the angle relationship, write a statement about whether they add to 180° or are equal, and find the value of x.

16.



Alternate exterior

$2x+19°=x+23°$

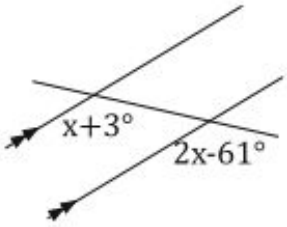
$-x \quad -x$

$x+19°=23°$

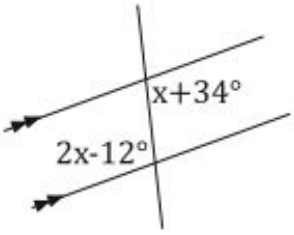
$-19° \quad -19°$

$x=4°$

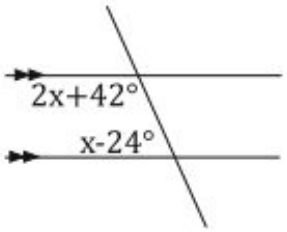
17.



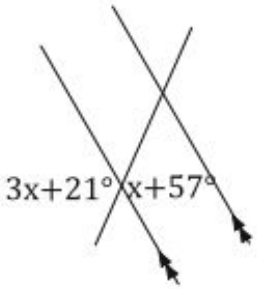
18.



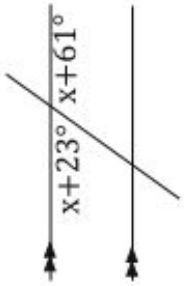
19.



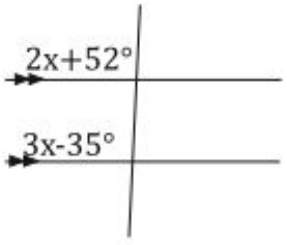
20.



21.



22.



Chapter *II* Section *III* - **Slope**

Utilize your knowledge of slope to answer the following:

Question 1

Identify the slope and y-intercept of each line

(a) $3x-2y = 6$

(b) $5x + 10y = -3$

Question 2

(c) Find the slope of the line passing through (–1, 3) and (5, –2).

(d) Find the slope of the line passing through (–1, 3) and (5, –2).

Question 3

(e) Find the equation of the line with m = 3/4 and passing through (–1, 2).

(f) Find the equation of the line passing through (–7, 2) and has a y–intercept at 3.

Chapter *III* Section *I* - **Types of Triangles**

Utilize your knowledge of triangle inequalities to answer the following:

PART I: Match the name of the triangle with the triangle shown.

____Isosceles

____Equilateral

____Scalene

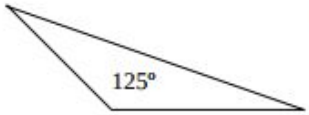
____Acute

____Right

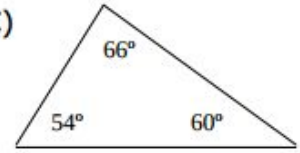
____Obtuse

A)

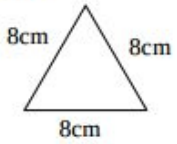
B)



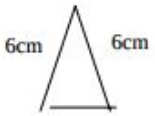
C)



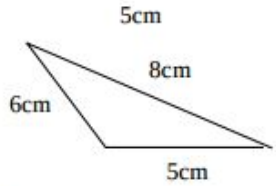
D)



E)



F)



Part II: Use the information above to answer the following:
If you were given the measurements of the angles and the sides of the triangles above, what two labels can you give to each triangle below?

Triangle A _____ _____

Triangle D _____ _____

Triangle E _____ _____

Triangle F _____ _____

PART III: Identify the type of triangle based on the following information

- A triangle with all sides and angles congruent_____
- A triangle with no sides congruent_____
- A triangle with one angle 91º_____
- A triangle with angles 103º, 20º, 57º_____
- A triangle with sides 11cm, 15cm, 11cm _____

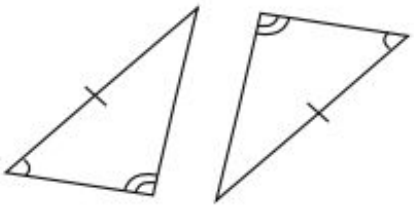
PART IV: Design a right triangle that is also scalene. Do this design without using a protractor and only with a ruler.

Chapter ***III*** Section ***II*** – **Triangle Congruence**

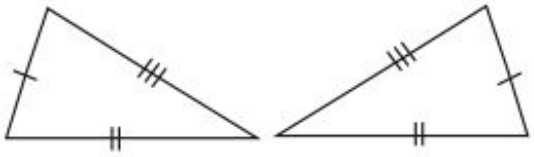
Utilize your knowledge of triangle congruence to answer the following:

For each, state whether the triangles are congruent by A: SSS, B: SAS, C: ASA (AAS), or D: HL and bubble your answer below.

1.



2.



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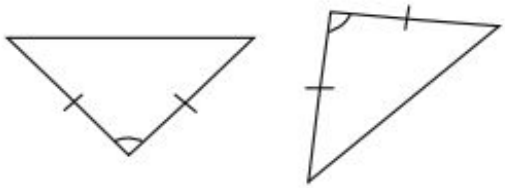
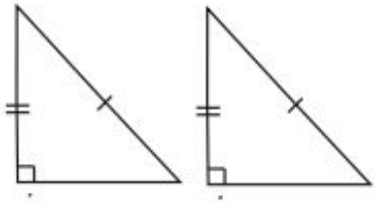


4.



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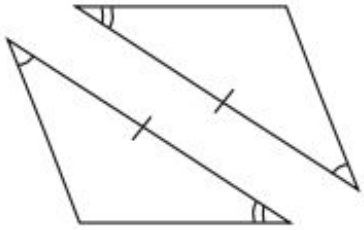
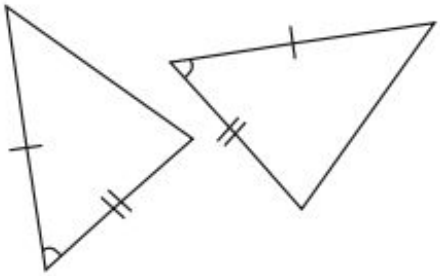
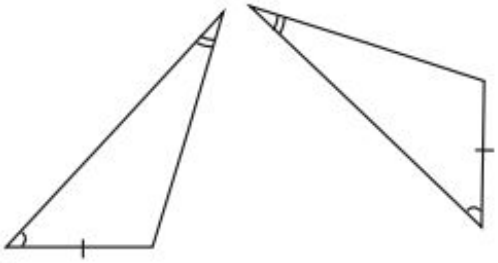


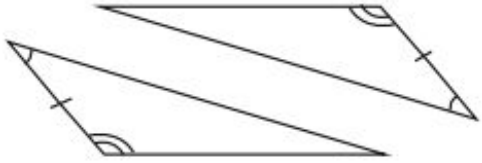
6.



7.



8.



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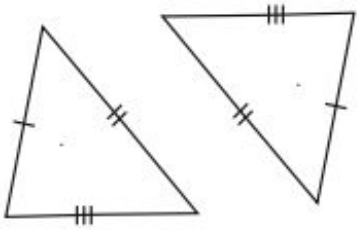
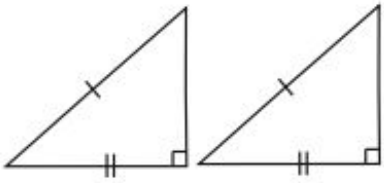


10.



Bubble the correct answer choice from each item above.

#1.	#2.	#3.	#4.	#5.	#6.	#7.	#8.	#9.	#10.
○A.	○A.	○A.	○A.	○A.	○A.	○A.	○A.	○A.	○A.
○B.	○B.	○B.	○B.	○B.	○B.	○B.	○B.	○B.	○B.
○C.	○C.	○C.	○C.	○C.	○C.	○C.	○C.	○C.	○C.
○D.	○D.	○D.	○D.	○D.	○D.	○D.	○D.	○D.	○D.

Chapter *III* Section *III* – **Triangle Properties**

For 1-4, identify the given segment as a perpendicular bisector, angle bisector, median or altitude.

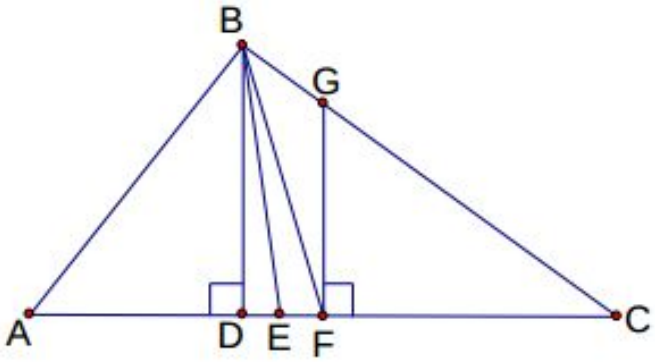
Given: $\overline{AF} \cong \overline{FC}$, $\angle ABE \cong \angle EBC$

_____1. $\overline{BF}$

_____2. $\overline{BE}$

_____3. $\overline{BD}$

_____4. $\overline{GF}$



Use the figure at the right for questions 5-9.
In ΔABC, $\overline{BF}, \overline{CD}, and\ \overline{AE}$ are medians.

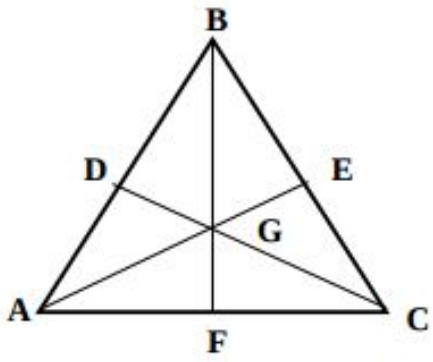
_____5. If FB = 39 , find BG.

_____6. IF EC = $\frac{17}{6}$, find BC.

_____7. If DG = $4\sqrt{3}$, find CD.

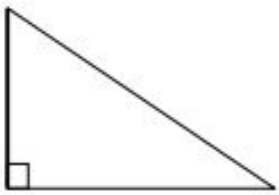
_____8. If AF = 2x + 4 and
AC = 3x + 13, find FC.

_____9. If DG = 4y, CG=20, find y.

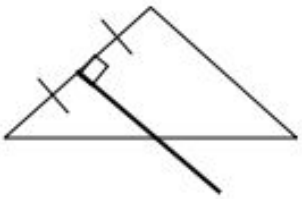


Determine if the darkened segment or line is a perpendicular bisector, altitude, both or neither.

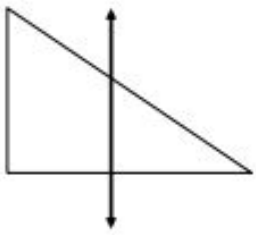
_____10.



_____11.



_____12.

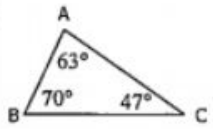


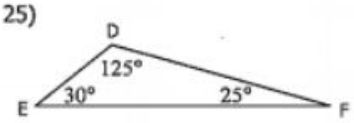
Chapter *III* Section *IV* – **Triangle Inequalities**

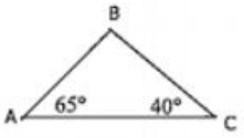
Utilize your knowledge of triangles to answer the following:

Question 1

List the sides in order, underline the side with the shortest length.

24) 

25) 

26) 

List the sides of ΔABC from the longest to shortest.

27) $m\angle A = 46°,\ m\angle B = 30°$

28) $m\angle C = 101°,\ m\angle B = 70°$

29) $m\angle A = 59°,\ m\angle C = 61°$

Find the value of x and list the sides of ΔABC in order from shortest to longest if the angles have the indicated measures. (Hint: Find the angle measures first, then decide which sides are the longest)

30) $m\angle A = (9x+29)°$, $m\angle B = (93-5x)°$, and $m\angle C = (10x+2)°$.

31) $m\angle A = (9x-4)°$, $m\angle B = (4x-16)°$, and $m\angle C = (68-2x)°$.

32) $m\angle A = (12x-9)°$, $m\angle B = (62-3x)°$, and $m\angle C = (16x+2)°$.

33) $m\angle A = (5x+2)°$, $m\angle B = (6x-10)°$, and $m\angle C = (x+20)°$.

34) $m\angle A = (10x)°$, $m\angle B = (5x-17)°$, and $m\angle C = (7x-1)°$.

Answer the following questions.

35) Draw ΔDEA with a median $\overline{EG}$.

36) Draw ΔJKH with an altitude $\overline{JP}$.

37) Find the value of x.

$\overline{SO}$ is an altitude of ΔSAT