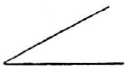
CONTENT OF GEOMETRY 8

(Approx 16% of Math 8).

Angle Properties



Acute ∠ (less than 90°)

Obtuse ∠ (between 90° and 180°)

Complementary ∠s add to 90°

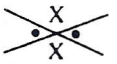
Supplementary ∠s add to 180°

Angles on a line add to 180°

Right ∠ (equals 90°)

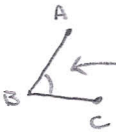
Straight ∠ (180° angle)

Angles at a point add to 360°



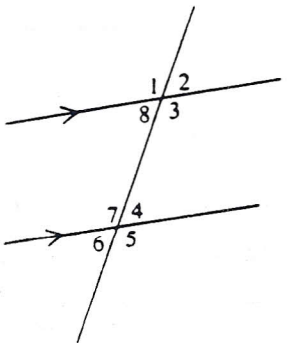
Vertically opposite ∠s are equal

- Congruent means equal size



name angle useing the vertex in the middle
∠ABC or ∠CBA

Parallel Lines and Transversal



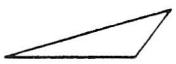
Corresponding ∠s:
∠1 = ∠7, ∠8 = ∠6,
∠2 = ∠4, ∠3 = ∠5.

Alternate interior ∠s:
∠3 = ∠7, ∠4 = ∠8.

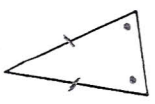
~~Interior ∠s on the same side of the transversal:~~ (co-interior angles)
∠8 + ∠7 = 180°, ∠3 + ∠4 = 180°.

Triangle Properties

∠ sum of a triangle is 180°

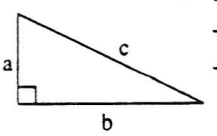


- Scalene triangle
  - — no sides equal
  - — no ∠s equal



- Isosceles triangle
  - — at least 2 sides equal
  - — ∠s opposite the equal sides are equal

- Equilateral triangle
  - — 3 sides equal
  - — 3 ∠s equal (each 60°)



- Right triangle
  - — 1 right angle
  - — hypotenuse is opposite the right angle
  - — Property of Pythagoras
    $a^2 + b^2 = c^2$

Circle Properties

Radius

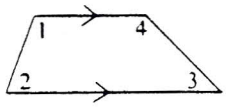
Diameter

∠ formed by two radii

Quadrilateral Properties

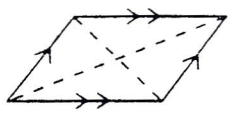
∠ sum of a quadrilateral is 360°

Trapezoid



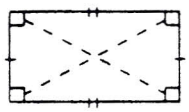
1 pair of || sides
∠1 + ∠2 = 180°, ∠3 + ∠4 = 180°
(interior ∠s on same side of transversal)

Parallelogram



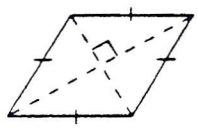
opposite sides equal and ||
opposite ∠s are equal
consecutive ∠s add to 180°
diagonals bisect each other

Rectangle



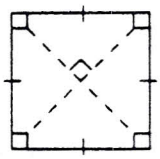
opposite sides equal and ||
each ∠ is 90°
diagonals are equal and bisect each other

Rhombus

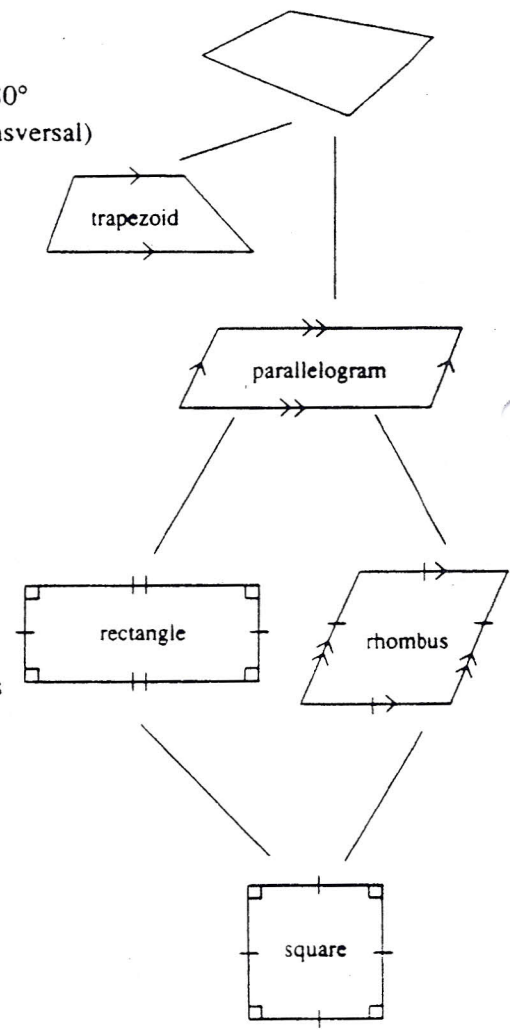


parallelogram with 4 equal sides
diagonals bisect at right ∠s
diagonals bisect the ∠s of the rhombus

Square



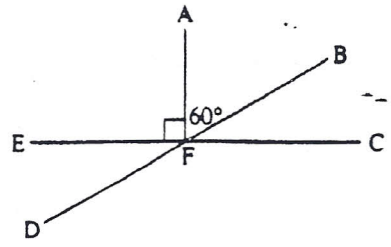
rhombus with 4 right ∠s, or
rectangle with 4 equal sides



(1)

ANGLES

1.



Name:

a) 3 acute ∠s _____

b) 3 obtuse ∠s _____

c) 2 right ∠s _____

d) 2 straight ∠s _____

e) an ∠ of 30° _____

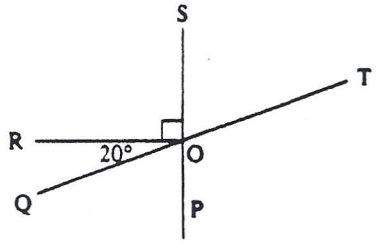
f) an ∠ of 150° _____

g) an ∠ of 120° _____

h) an ∠ vertically opposite to ∠EFD _____

i) an ∠ congruent to ∠AFC _____

2.



Name:

a) an ∠ complementary to ∠POQ _____

b) an ∠ supplementary to ∠QOR _____

c) an ∠ supplementary to ∠SOT _____

d) an ∠ supplementary to ∠ROS _____

e) an ∠ vertically opposite to ∠SOQ _____

f) an ∠ vertically opposite to ∠QOP _____

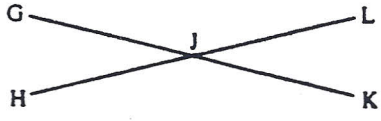
g) an ∠ congruent to ∠ROS _____

h) an ∠ of 110° _____

i) an ∠ of 70° _____

j) an ∠ of 160° _____

3.



Name:

a) 2 pairs of vertically opposite ∠s _____

_____

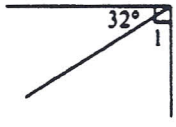
b) 2 ∠s supplementary to ∠LJK _____

c) 2 straight ∠s _____

d) an ∠ congruent to ∠GJL _____

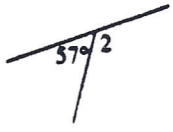
4. Find the measure of each required angle.

a)



∠1 = _____

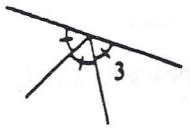
b)



∠2 = _____

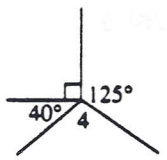
(2)

c)



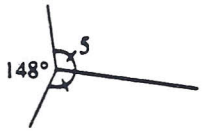
∠3 = _____

d)



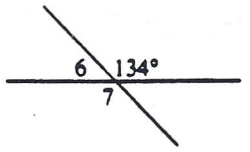
∠4 = _____

e)



∠5 = _____

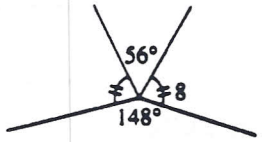
f)



∠6 = _____

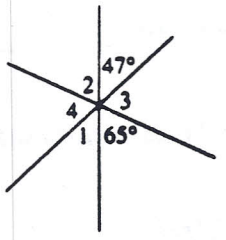
∠7 = _____

g)



∠8 = _____

h)



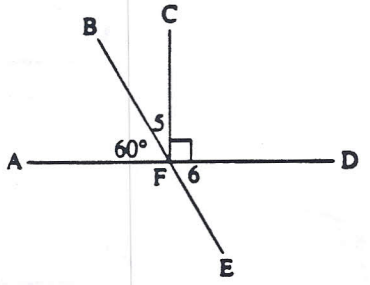
∠1 = _____

∠2 = _____

∠3 = _____

∠4 = _____

i)

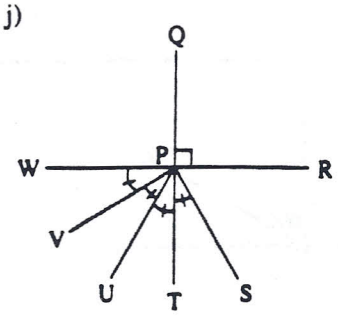


∠5 = _____

∠ = _____

∠BFD = _____

j)



∠WPT = _____

∠WPV = _____

∠VPT = _____

∠VPS = _____

∠RPS = _____

∠WPS = _____

∠QPS = _____

5. True or false?

a) Vertically opposite angles can be right angles. _____

b) Two acute angles can be complementary. _____

c) Two obtuse angles can be supplementary. _____

d) Two congruent angles can be complementary. _____

6. Find the measures of ∠A and ∠B if ∠A and ∠B are complementary and

a) ∠A = ∠B _____

b) ∠A is twice ∠B _____

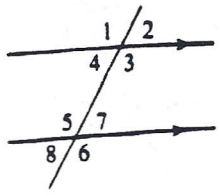
c) ∠A is 20° more than ∠B _____

d) ∠A is 10° less than ∠B _____

3

PARALLEL LINES AND TRANSVERSALS

1.



Name an angle that is:

a) vertically opposite to ∠3 _____

b) corresponding to ∠5 _____

c) alternate interior to ∠4 _____

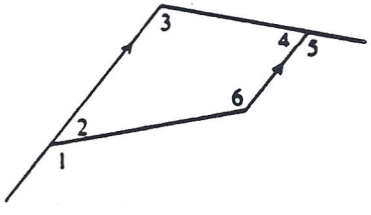
d) interior on the same side of the transversal to ∠7 _____

e) corresponding to ∠6 _____

f) alternate interior to ∠5 _____

g) interior on the same side of the transversal to ∠4 _____

2.



Name an angle that is:

a) alternate interior to ∠1 _____

b) corresponding to ∠3 _____

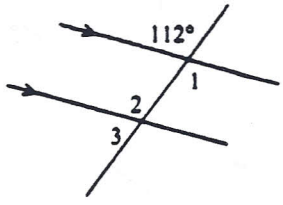
c) supplementary to ∠1 _____

d) supplementary to ∠6 _____

e) interior on the same side of the transversal to ∠3 _____

3. Find the measure of each required angle.

a)

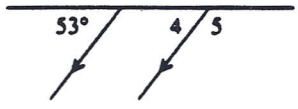


∠1 = _____

∠2 = _____

∠3 = _____

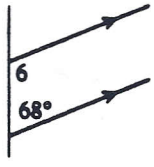
b)



∠4 = _____

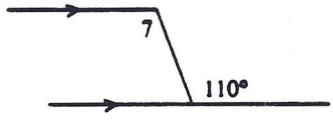
∠5 = _____

c)



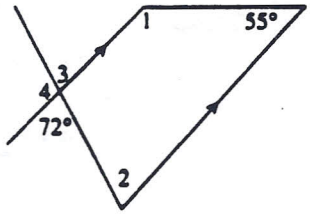
∠6 = _____

d)



∠7 = _____

e)



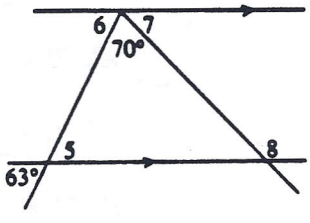
∠1 = _____

∠2 = _____

∠3 = _____

∠4 = _____

f)



∠5 = _____

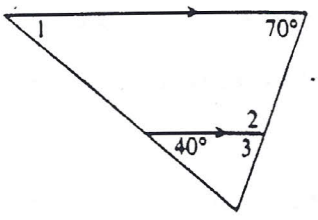
∠6 = _____

∠7 = _____

∠8 = _____

(4)

g)

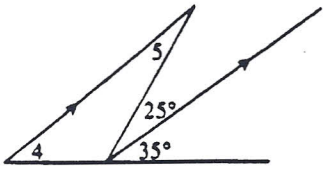


∠1 = _____

∠2 = _____

∠3 = _____

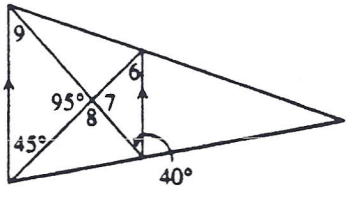
h)



∠4 = _____

∠5 = _____

i)



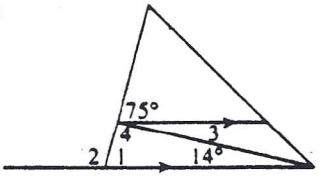
∠6 = _____

∠7 = _____

∠8 = _____

∠9 = _____

j)



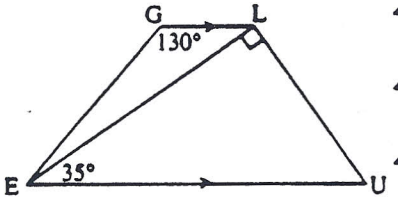
∠1 = _____

∠2 = _____

∠3 = _____

∠4 = _____

k)



∠GLE = _____

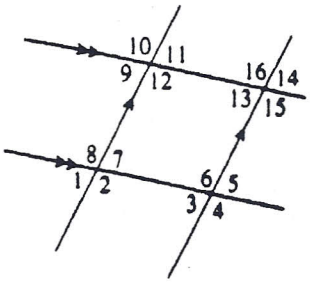
∠GLU = _____

∠LUE = _____

∠GEU = _____

∠GEL = _____

4.



Name:

a) an ∠ vertically opposite to ∠10 _____

b) 2 ∠s alternate interior to ∠13 _____

c) 2 ∠s corresponding to ∠1 _____

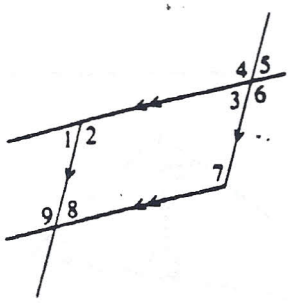
d) 2 interior ∠s on the same side of the transversal to ∠6 _____

e) 3 ∠s suppiementary to ∠8 _____

f) 3 ∠s congruent to ∠7 _____

(5)

5.



Classify each pair of angles below by the most appropriate letter.

S = supplementary ∠s
V = vertically opposite ∠s
C = corresponding ∠s
A = alternate interior ∠s
I = interior ∠s on the same side of the transversal
N = none of these

a) ∠1 and ∠3 _____

b) ∠9 and ∠8 _____

c) ∠4 and ∠6 _____

d) ∠7 and ∠6 _____

e) ∠4 and ∠7 _____

f) ∠1 and ∠6 _____

g) ∠2 and ∠8 _____

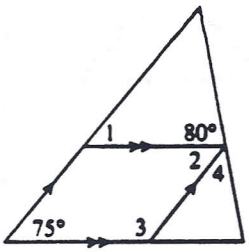
h) ∠2 and ∠4 _____

i) ∠7 and ∠8 _____

j) ∠8 and ∠3 _____

6. Find the measure of each numbered angle.

a)



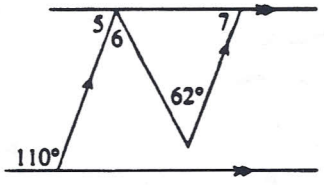
∠1 = _____

∠2 = _____

∠3 = _____

∠4 = _____

b)

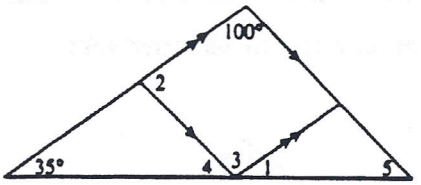


∠5 = _____

∠6 = _____

∠7 = _____

c)



∠1 = _____

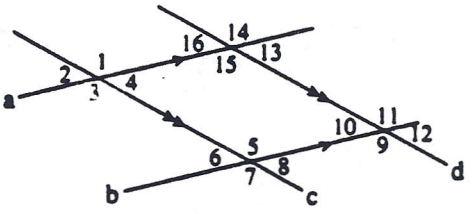
∠2 = _____

∠3 = _____

∠4 = _____

∠5 = _____

7.



Name the two parallel segments and the transversal that form:

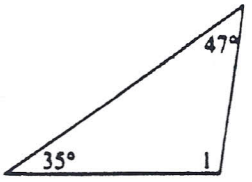
	Segments		Transversal
a) alternate interior ∠s 3 and 5	___	___	___
b) corresponding ∠s 5 and 11	___	___	___
c) interior ∠s 13 and 11 on the same side of the transversal	___	___	___
d) alternate interior ∠s 15 and 1	___	___	___

(6)

TRIANGLES

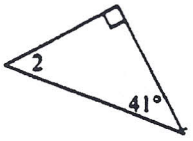
Find the measure of each numbered angle.

1.



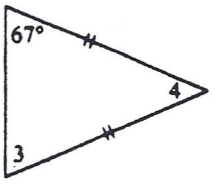
∠1 = _____

2.



∠2 = _____

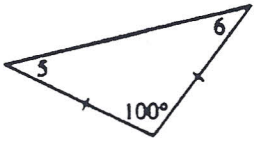
3.



∠3 = _____

∠4 = _____

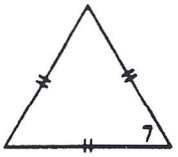
4.



∠5 = _____

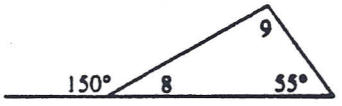
∠6 = _____

5.



∠7 = _____

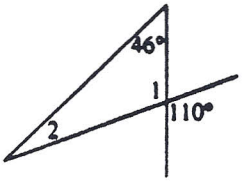
6.



∠8 = _____

∠9 = _____

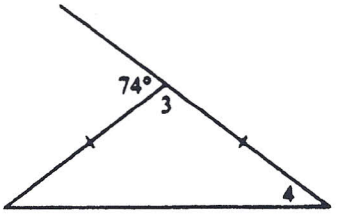
7.



∠1 = _____

∠2 = _____

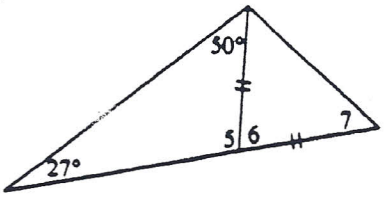
8.



∠3 = _____

∠4 = _____

9.

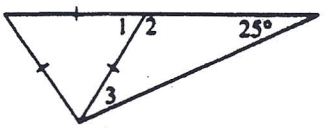


∠5 = _____

∠6 = _____

∠7 = _____

10.

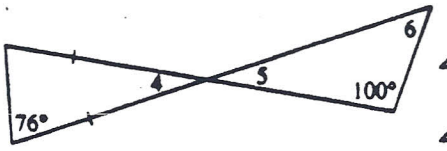


∠1 = _____

∠2 = _____

∠3 = _____

11.

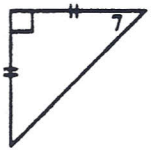


∠4 = _____

∠5 = _____

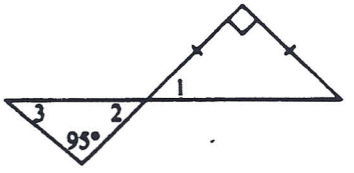
∠6 = _____

12.



∠7 = _____

13.

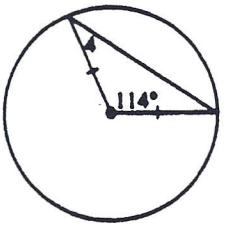


∠1 = _____

∠2 = _____

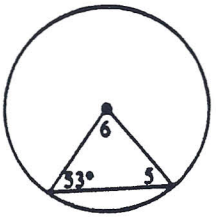
∠3 = _____

14.



∠4 = _____

15.

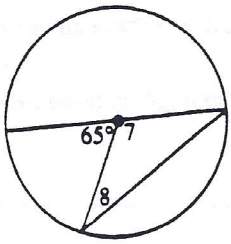


∠5 = _____

∠6 = _____

(7)

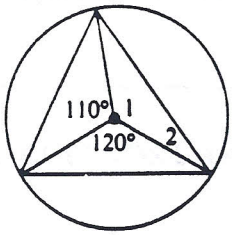
16.



∠7 = _____

∠8 = _____

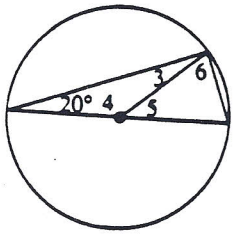
17.



∠1 = _____

∠2 = _____

18.



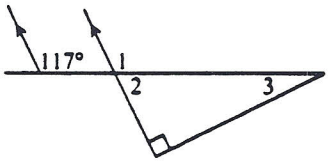
∠3 = _____

∠4 = _____

∠5 = _____

∠6 = _____

19.

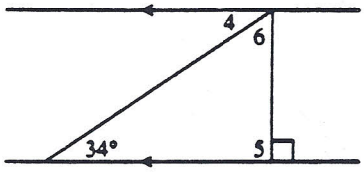


∠1 = _____

∠2 = _____

∠3 = _____

20.

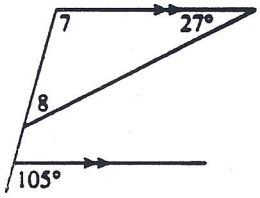


∠4 = _____

∠5 = _____

∠6 = _____

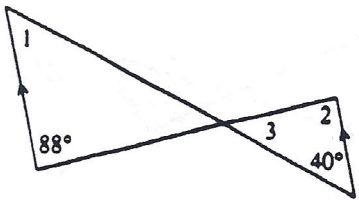
21.



∠7 = _____

∠8 = _____

22.

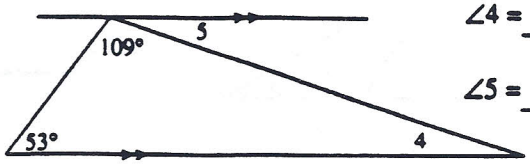


∠1 = _____

∠2 = _____

∠3 = _____

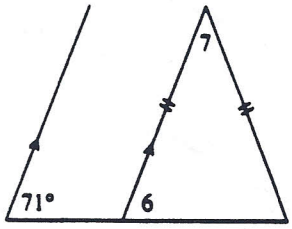
23.



∠4 = _____

∠5 = _____

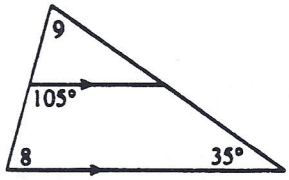
24.



∠6 = _____

∠7 = _____

25.

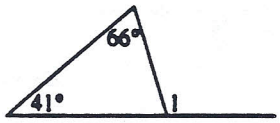


∠8 = _____

∠9 = _____

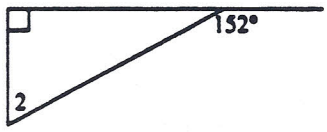
For questions 26 to 35, you may have to find the measures of other angles to determine the size of the numbered angle.

26.



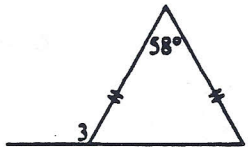
∠1 = _____

27.



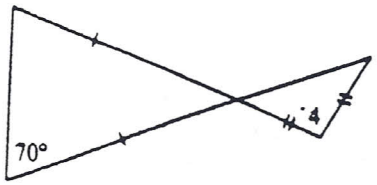
∠2 = _____

28.



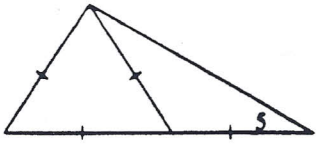
∠3 = _____

29.



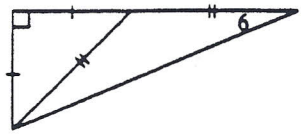
$\angle 4 =$ _____

30.



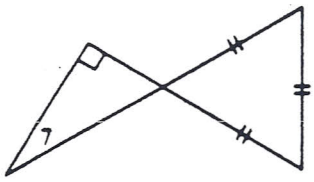
$\angle 5 =$ _____

31.



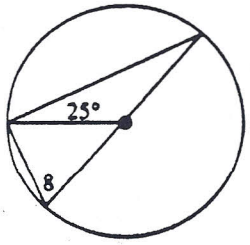
$\angle 6 =$ _____

32.



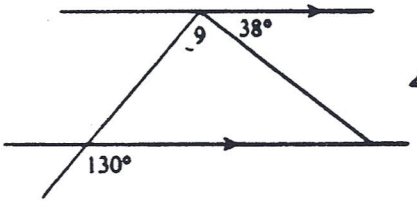
$\angle 7 =$ _____

33.



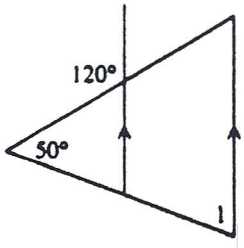
$\angle 8 =$ _____

34.



$\angle 9 =$ _____

35.



$\angle 1 =$ _____

36. Find the measures of the three angles of ΔABC if

a) $\angle A$ is twice $\angle B$ and $\angle C$ is three times $\angle B$.

_____

b) $\angle A = \angle B$ and $\angle C$ is 36° more than $\angle A$.

_____

c) $\angle B$ is twice $\angle A$ and $\angle C$ is 10° less than $\angle B$.

_____