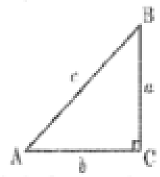
01/08/2020

Today we studied parallel lines and the angle properties that arise from transversals. This added to the properties we learned Monday and Tuesday. The key ones being Linear Pairs are supplementary and Verticals Angles are congruent. We also began our initial look into triangle properties. Below you can find the notes and practice we completed in class

If the m∠B is x, what is the m∠A?

A. 2x
B. 90-x
C. 180-x
D. Not enough information to determine.



1

Parallel Lines & Transversals

l || m

l is parallel to m

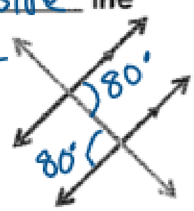
2

Alternate Interior Angles

- Opposite sides of the transversal & inside the parallels
- Are congruent

Equation:

angle = angle



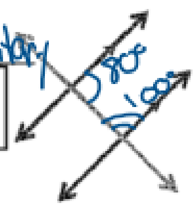
3

Consecutive Interior Angles

- Same Side of the transversal & inside the parallels
- Are Supplementary

Equation:

angle + angle = 180 °



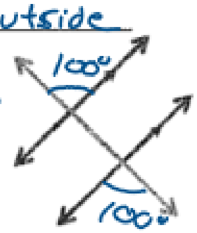
4

Alternate Exterior Angles

- Opposite sides of the transversal & outside the parallels
- Are Congruent

Equation:

angle = angle



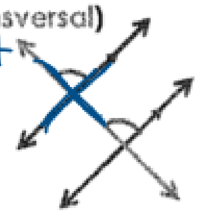
5

Corresponding Angles

- Same location but at different intersections (only travel on the transversal)
- Are congruent

Equation:

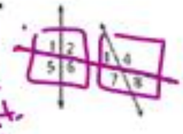
angle = angle



6

Identify each angle pair.

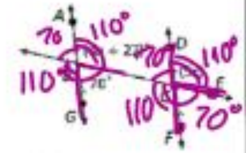
1. ∠1 and ∠3 - corresp.
2. ∠3 and ∠6 - Alt. Int.
3. ∠4 and ∠5 - Alt. Ext.
4. ∠6 and ∠7 Cons. Int.



7

Example 1:

Find each angle measure.



A. m∠ECF

70°

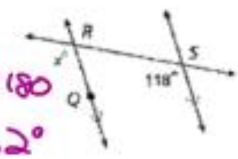
B. m∠DCE

m∠DCE

8

Example 1

Find m∠QRS.



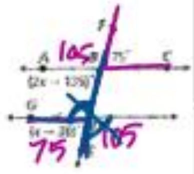
$118 + m\angle QRS = 180$

$m\angle QRS = 62°$

9

Example 2:

Find each angle measure.



A. m∠EDG = 75°

Alt. Ext.

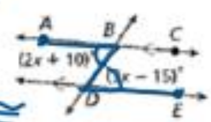
B. m∠BDG 105°

10

Congruent ≅

Example 2

Find m∠ABD.



Alt. Int. ≅

$2x + 10 = 3x - 15$

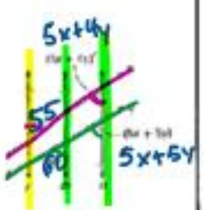
$-2x + 15 \quad -2x + 15$

$\boxed{25 = x}$

11

Example 3:

Find x and y in the diagram.



$-(55 = 5x + 4y)$

$60 = 5x + 5y$

$-55 = -5x - 4y$

$\boxed{5 = y \quad 7 = x}$

$60 = 5x + 5(5)$

$60 = 5x + 25$

$35 = 5x$

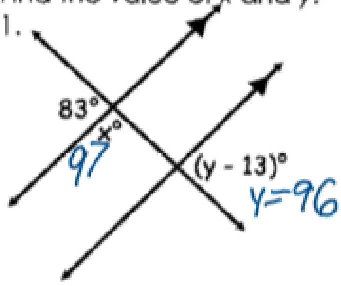
$7 = x$

12

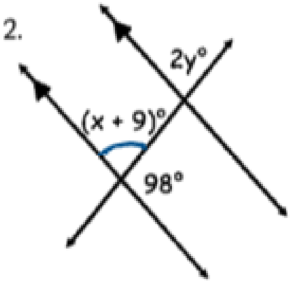
Name: ______________________________ Date: ______________

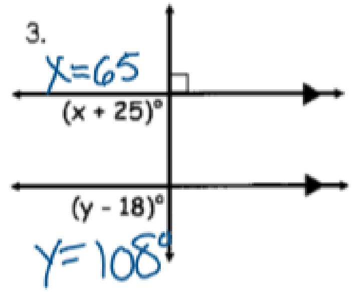
Parallel Lines and Transversals Homework

Find the value of x and y.

1.


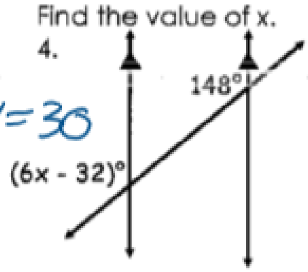
97
y=96

2.


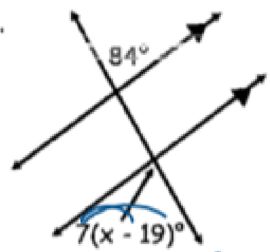
3.


x=65
y=108°

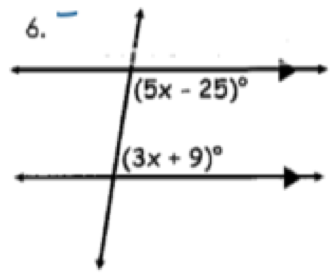
Find the value of x.

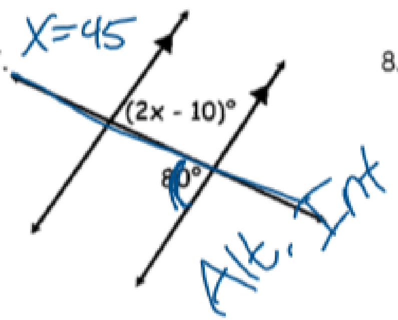
4.


x=30

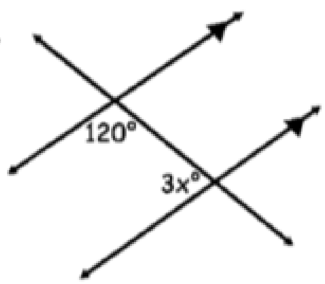
5.


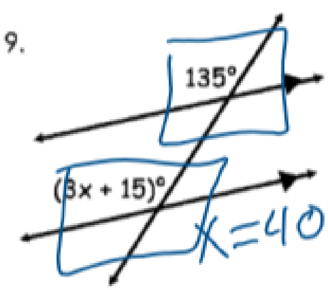
x=31°

6.


7.


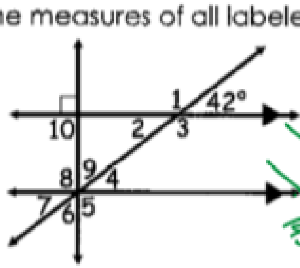
x=45
Alt. Int

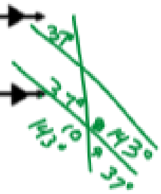
8.


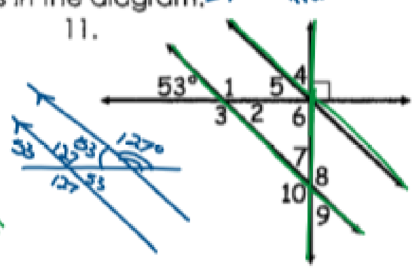
9.


corr.
x=40

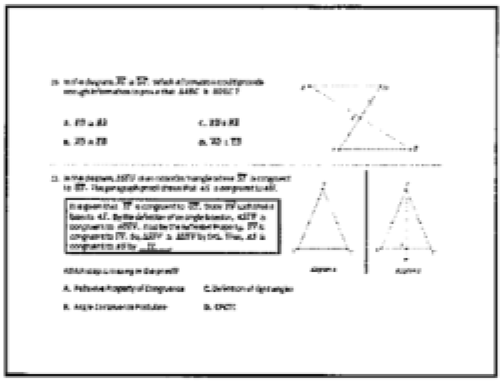
Find the measures of all labeled angles in the diagram. → assume lines that look parallel are

10.




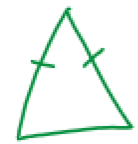
11.


1 = 127°
2 = 53°
3 = 127°
4 = 37°
5 = 53°
6 = 90°
7 = 37°
8 = 143°
9 = 37°
10 = 143°



1

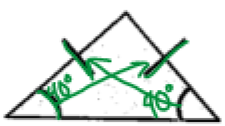
Isosceles Triangles



2

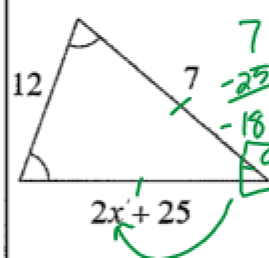
Base Angles

- If 2 angles in a triangle are congruent, then the sides opposite them are congruent.



3

Solve for x.



$7 = 2x + 25$

$-25 \quad -25$

$-18 = 2x$

$\boxed{9 = x}$

4

Base Angles

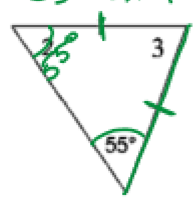
- If 2 sides in a triangle are congruent, then the angles opposite them are congruent.

5

Solve for x.

$m\angle 2 = 6x + 1$

$55 = 6x + 1$



$55 = 6x + 1$

$54 = 6x$

$9 = x$

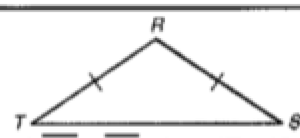
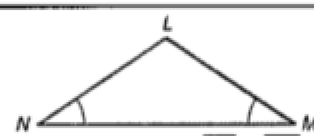
6

Tonight's homework is to complete pages 14 and 15 in the packet.

Name ______________________ Date ______________ Class ______________

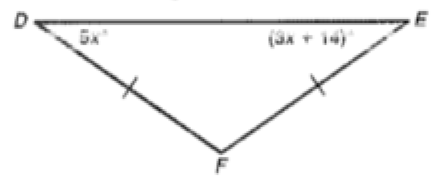
Notes

Isosceles and Equilateral Triangles

Theorem	Examples
Isosceles Triangle Theorem If two sides of a triangle are congruent, then the angles opposite the sides are congruent.	 If $\overline{RT} \cong \overline{RS}$, then /T > /S.
Converse of Isosceles Triangle Theorem If two angles of a triangle are congruent, then the sides opposite those angles are congruent.	 If /N > /M, then $\overline{LN} \cong \overline{LM}$.

You can use these theorems to find angle measures in isosceles triangles.

Find m∠*E* in △*DEF*.



m∠*D* = m∠*E* — Isosc. △ Thm.

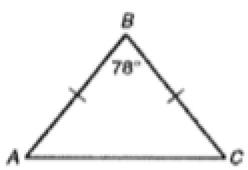
5x8 = (3x + 14)8 — Substitute the given values.

2x = 14 — Subtract 3x from both sides.

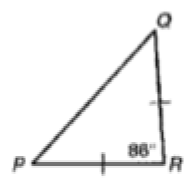
x = 7 — Divide both sides by 2.

Thus m∠*E* = 3(7) + 14 = 358.

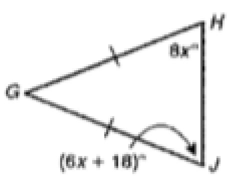
Find each angle measure.



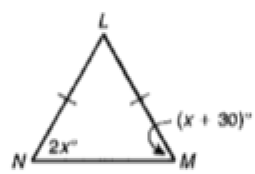
1. m∠C = ______________________



2. m∠Q = ______________________



3. m∠H = ______________________



4. m∠M = ______________________

Name ______________________ Date ____________ Class ____________

Notes

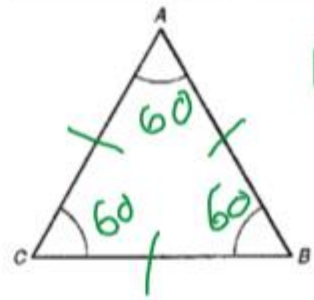
Isosceles and Equilateral Triangles continued

Equilateral Triangle Corollary
If a triangle is equilateral, then it is equiangular.

(equilateral △ → equiangular △)

Equiangular Triangle Corollary
If a triangle is equiangular, then it is equilateral.

(equiangular △ → equilateral △)

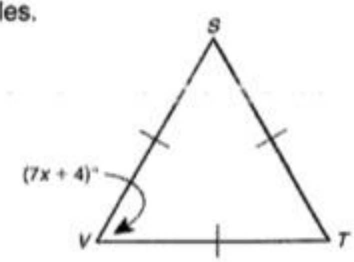


180° = 3x
x = 60

If /A > /B > /C, then $\overline{AB} \cong \overline{BC} \cong \overline{CA}$.

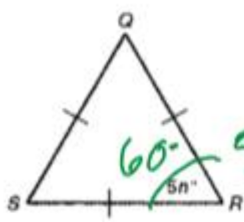
You can use these theorems to find values in equilateral triangles.

Find *x* in △*STV*.



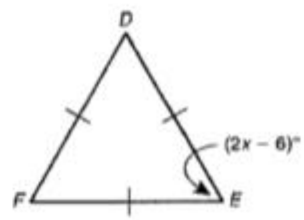
△*STV* is equiangular.	Equilateral △ → equiangular △
$(7x + 4)8 = 60°$	The measure of each ∠ of an equiangular △ is 60°.
$7x = 56$	Subtract 4 from both sides.
$x = 8$	Divide both sides by 7.

Find each value.

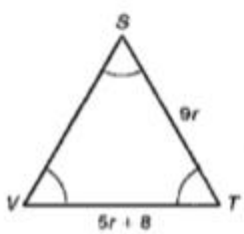


5n = 60

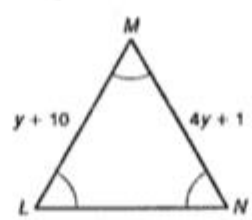
5. n = ____________



6. x = ____________



7. VT = ____________



8. MN = ____________