Acc Geometry Name Key

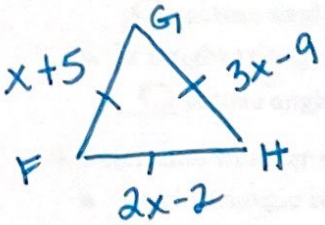
4.1 & 4.2 Practice 2020 Date

Warm-Up:

4.1 Warm-Up:

Directions: Find x and the measure of each side of the triangle.

1. ΔFGH is equilateral with FG = x + 5, GH = 3x – 9, and FH = 2x – 2.



FG ≅ GH def of equilateral Δ

x+5 = 3x-9

7 = x

X= 7

FG= 12

GH= 12

FH= 12

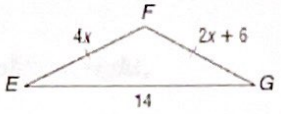
4.1 Warm-Up:

2. *Find x and the measure of each side of isosceles triangle EFG.*

EF ≅ FG def of isosceles Δ

4x = 2x + 6

x = 3



EG = 14

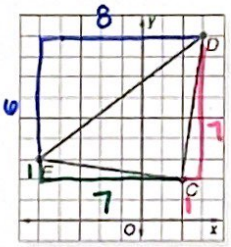
EF = 12

FG = 12

4.1 Warm-Up:

3. COORDINATE GEOMETRY Find the measures of the sides of △*DEC*. Classify the triangle by sides.

Use the Distance Formula to find the lengths of each side.



$1^2+7^2=EC^2$

$5\sqrt{2}=EC$

$1^2+7^2=CD^2$

$5\sqrt{2}=CD$

$6^2+8^2=ED^2$

$\sqrt{100}=ED$

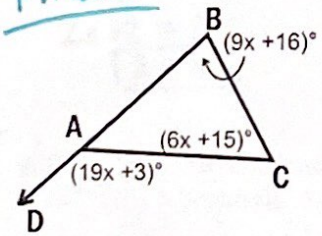
$10=ED$

EC ≅ CD ∴ ΔDEC is isosceles by def (2 ≅ sides)

4.2 Angle Example:

4. Exterior Angle Theorem: The measure of the exterior angle is the sum of the measures of the remote interior angles.

Find x



∠B + ∠C = ∠CAD Exterior angle theorem

9x+16+6x+15 = 19x+3

15x + 31 = 19x + 3

28 = 4x

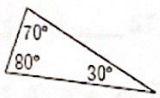
7 = x

4.1 & 4.2 Practice Worksheet 2020 **Taken from textbook**

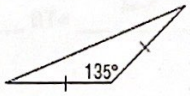
1. Supply the correct numbers to complete each sentence.
   a. In an obtuse triangle, there are 2 acute angle(s), 0 right angle(s), and 1 obtuse angle(s).
   b. In an acute triangle, there are 3 acute angle(s), 0 right angle(s), and 0 obtuse angle(s).
   c. In a right triangle, there are 2 acute angle(s), 1 right angle(s), and 0 obtuse angle(s).

2. Determine whether each statement is *always*, *sometimes*, or *never* true.
   a. A right triangle is scalene. Sometimes
   b. An obtuse triangle is isosceles. Sometimes
   c. An equilateral triangle is a right triangle. Never
   d. An equilateral triangle is isosceles. always
   e. An acute triangle is isosceles. Sometimes
   f. A scalene triangle is obtuse. Sometimes

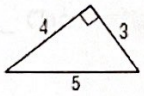
3. Describe each triangle by as many of the following words as apply: *acute*, *obtuse*, *right*, *scalene*, *isosceles*, or *equilateral*.

a. 

acute Scalene

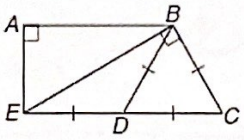
b. 

obtuse isosceles

c. 

Right scalene

Identify the indicated type of triangles.



4. right
   △ABE
   △EBC

5. isosceles
   △EBD
   △BDC

6. scalene
   △AEB
   △BCE

7. Find the measure of each side of equilateral $\triangle RST$ with $RS = 2x + 2$, $ST = 3x$, and $TR = 5x - 4$.

$RS \cong ST$ def of equilateral △

$2x + 2 = 3x$

$\boxed{2 = x}$

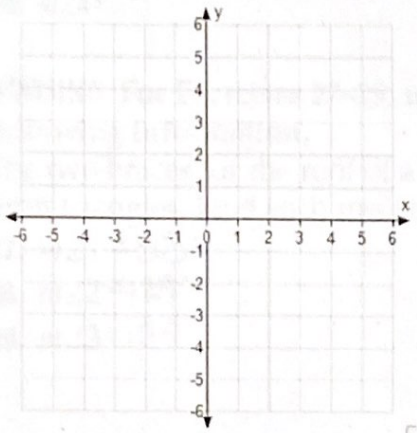
RS = 6
ST = 6
TR = 6

8. Find the measure of each side of isosceles $\triangle ABC$ with $AB = BC$ if $AB = 4y$, $BC = 3y + 2$, and $AC = 3y$.

AB = 8
BC = 8
AC = 6

Find the measures of the sides of ΔRST and classify each triangle by its sides.

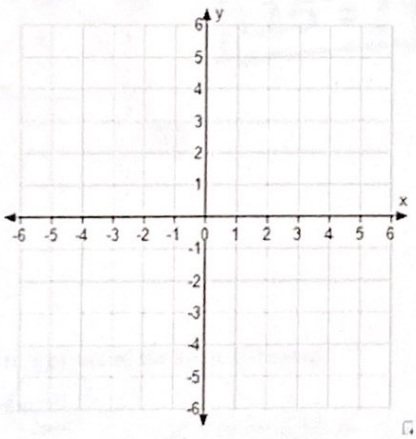
13. $R(0, 2), S(2, 5), T(4, 2)$



must show work

RS = $\sqrt{13}$ ST = $\sqrt{13}$ RT= 4 Classification: Isosceles because RS ≅ ST

14. $R(1, 3), S(4, 7), T(5, 4)$

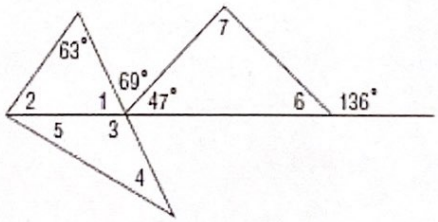


Must Show your work

RS = 5 ST = $\sqrt{10}$ RT= $\sqrt{17}$ Classification: NO ≅ Sides ∴ Scalene

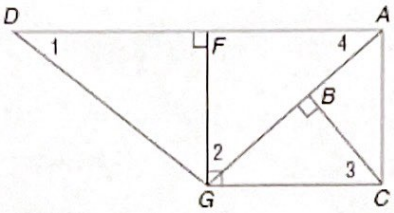
Find each measure if $m\angle 4 = m\angle 5$.

13. $m\angle 1 = 64^\circ$
14. $m\angle 2 = 53^\circ$
15. $m\angle 3 = 116^\circ$
16. $m\angle 4 = 32^\circ$
17. $m\angle 5 = 32^\circ$
18. $m\angle 6 = 44^\circ$



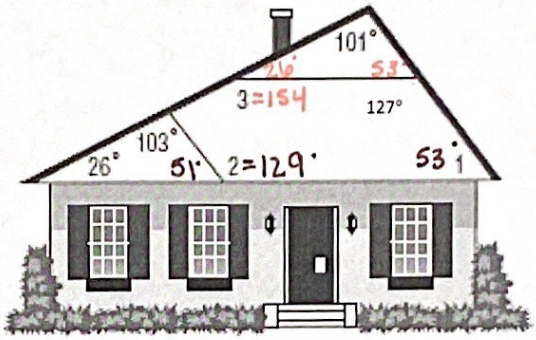
Find each measure if $m\angle DGF = 53$ and $m\angle AGC = 40$.

19. $m\angle 1 = 37°$
20. $m\angle 2 = 50°$
21. $m\angle 3 = 50°$
22. $m\angle 4 = 40°$



HOUSING For Exercises 27–29, use the following information.
The two braces for the roof of a house form triangles. Find each measure.

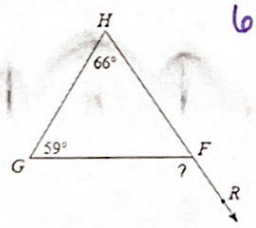
27. $m\angle 1 = 53°$
28. $m\angle 2 = 129°$
29. $m\angle 3 = 154°$



Exterior Angles

Find the measure of each angle indicated.

1)

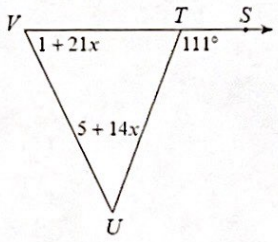


$66° + 59 = ?$

$125° = ?$

Solve for x.

2)



$\angle U + \angle V = \angle UTS$ ext. $\angle$ theorem

$5 + 14x + 1 + 21x = 111°$

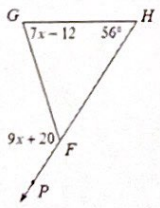
$35x + 6 = 111$

$35x = 105$

$x = 3$

Find the measure of the angle indicated.

3) Find $m\angle G$.



$\angle G + \angle H = \angle GFP$ ext. $\angle$ thm

$7x - 12 + 56 = 9x + 20$

$7x + 44 = 9x + 20$

$24 = 2x$

$12 = x$

$\angle G = 7(12) - 12$

$\angle G = 72°$ ← Final Answer