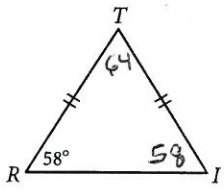
Lesson 4.2 • Properties of Isosceles Triangles

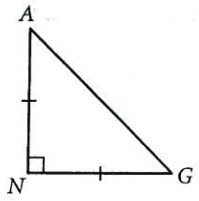
Name _____ Period _____ Date _____

In Exercises 1–3, find the angle measures.

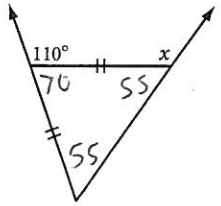
1. $m\angle T =$ 64



2. $m\angle G =$ 45

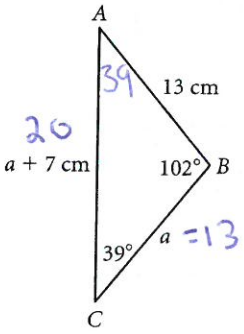


3. $x =$ 125

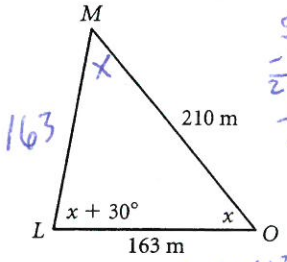


In Exercises 4–6, find the measures.

4. $m\angle A =$ 39, perimeter of $\triangle ABC =$ 46



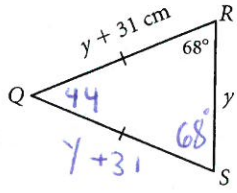
5. The perimeter of $\triangle LMO$ is 536 m. $LM =$ 163, $m\angle M =$ 50°



536 − 210 = 326; 326 − 163 = 163

x + x + x + 30 = 180; 3x = 150; x = 50

6. The perimeter of $\triangle QRS$ is 344 cm. $m\angle Q =$ 44, $QR =$ 125



3y + 62 = 344; y = 94

7. a. Name the angle(s) congruent to $\angle DAB$.

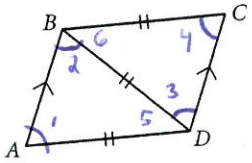
∠1, ∠2, ∠3, ∠4

b. Name the angle(s) congruent to $\angle ADB$.

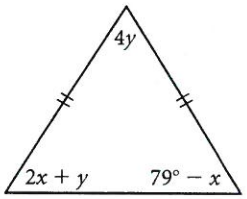
∠5, ∠6

c. What can you conclude about $\overline{AD}$ and $\overline{BC}$? Why?

They are congruent. Same Tick Marks



8. $x =$ 21, $y =$ 16

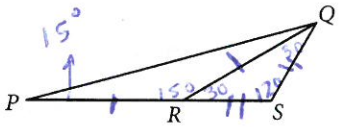


3x + y = 79; −3x − 15y = −303; −14y = −224; y = 16

79 − x = 2x + y; 79 = 3x + y

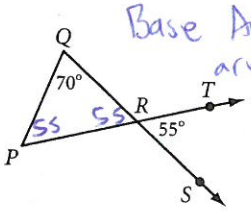
2x + y + 79 − x + 4y = 180; x + 5y = 101

9. $PR = QR$ and $QS = RS$. If $m\angle RSQ = 120°$, what is $m\angle QPR$?

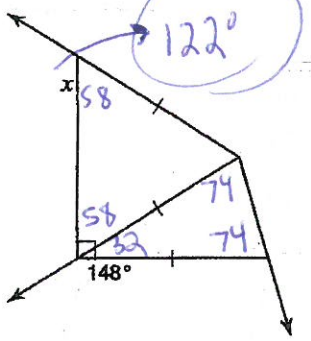


10. Use the diagram to explain why $\triangle PQR$ is isosceles.

Base Angles are equal.

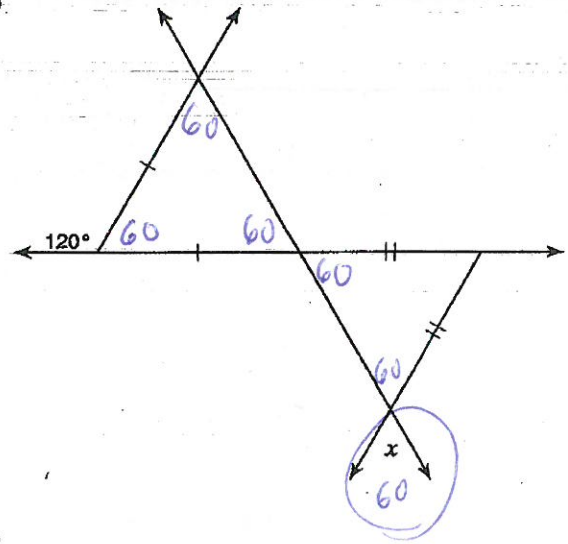


11)

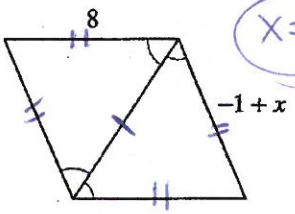


122°

12)



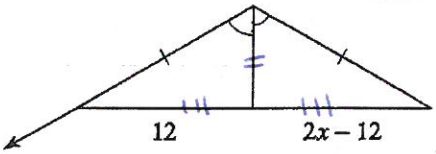
13)



$-1+x=8$

$x=9$

14)

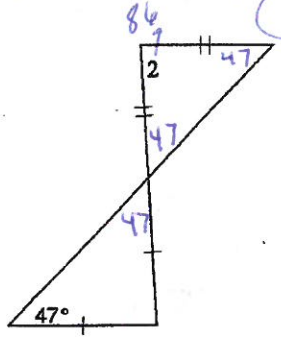


$12=2x-12$

$24=2x$

$12=x$

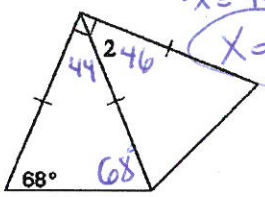
15) $m\angle 2 = x+94 = 86$ → $x=-8$



16) $m\angle 2 = 4x-2 = 46$

$4x=48$

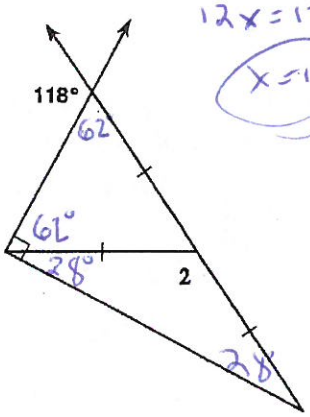
$x=12$



17) $m\angle 2 = 12x+4 = 124$

$12x=120$

$x=10$



18) $m\angle 2 = 13x+3 = 146$

$x=11$