

Legs: the two congruent sides of an isosceles triangle

Vertex angle: the angle formed by the legs of an isosceles triangle

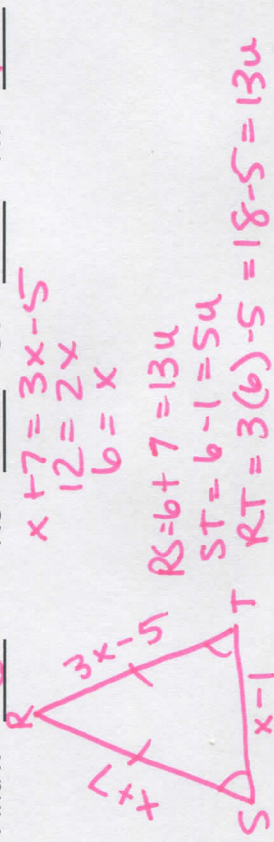
Base: the side opposite the vertex angle formed by the congruent base angles

Base angles: two congruent angles opposite of the congruent legs of the isosceles triangle

**TASK 1:** Sides of Isosceles Triangle

$\triangle RST$  is an isosceles triangle.  $\angle R$  is the vertex angle,  $RS = x+7$ ,  $ST = x-1$ , &  $RT = 3x-5$ .

Find  $x =$  6      $RS =$  13u      $ST =$  5u      $RT =$  13u



**TASK 3:** Angles of Equilateral Triangles

Find the value of  $x$ .

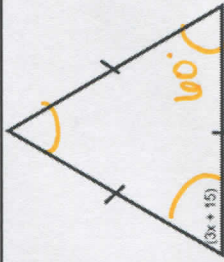
$$3x+15 = 60$$

$$3x = 45$$

$$\boxed{x = 15}$$

OR

$$3(3x+15) = 180$$



**TASK 2:** Perimeter of an Isosceles Triangle

Find the length of a leg of isosceles triangle  $ABC$ , if  $AB = 2x + 4$ ,  $BC = 3x - 1$ , and  $AC = x + 1$ , and the perimeter is 34 cm.

$$2x+4+x+1+3x-1=34$$

$$6x+4=34$$

$$6x=30$$

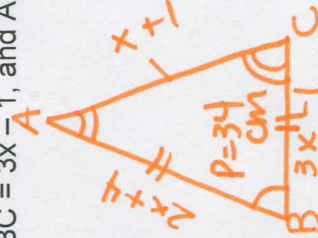
$$x=5$$

$$AB = 2(5)+4 = 14\text{cm}$$

$$BC = 3(5)-1 = 14\text{cm}$$

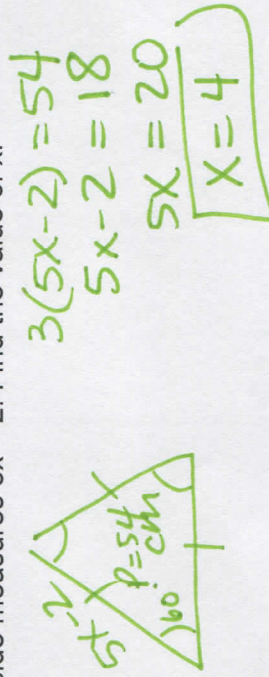
$$AC = (5)+1 = 6\text{cm}$$

14cm



**TASK 4:** Perimeter of Equilateral Triangle

An equilateral triangle has a perimeter of 54 centimeters. One side measures  $5x - 2$ . Find the value of  $x$ .





**TASK 5:** Find the perimeter of triangle XYZ.

Find the perimeter of triangle XYZ if  $XY = \frac{2}{3}y - 3$  and

$YZ = \frac{7}{3}y - 13$ .  $3[\frac{2}{3}y - 3 + \frac{7}{3}y - 13]$

$2y - 9 = 7y - 39$

$30 = 5y$

$6 = y$

$\frac{2}{3}(6) - 3$

$4 - 3 = 1$

$P = 1 + 1 + 1$

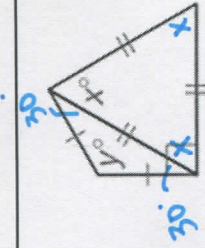
$P = 3u$

**TASK 6:** Solving a triangle

Find the values of x and y.

$y = 120$

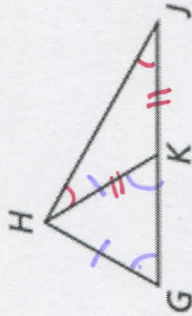
$x = 60$



**TASK 7:** Complete the statement.

a) If  $\overline{HG} \cong \overline{HK}$ ,

then  $\angle G \cong \angle K$



b) If  $\angle KHJ \cong \angle KJH$ ,

then  $\overline{KH} \cong \overline{KJ}$

**TASK 8:** Using Isosceles & Equilateral Triangles

Find the values of x and y in the diagram.

$y = 4$

$x = 3$



$4 = x + 1$   
 $3 = x$

**TASK 9:** Equilateral Triangles

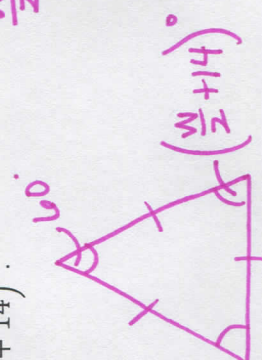
Find the value of w if one angles of an equilateral triangle is

$(\frac{w}{2} + 14)^\circ$ .

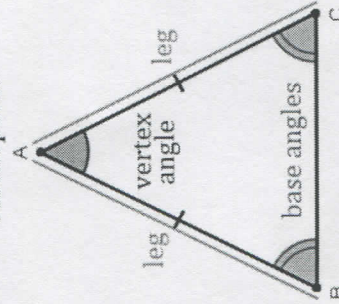
$\frac{w}{2} + 14 = 60$

$\frac{w}{2} = 46$

$w = 92$



vertex point



Still need help with: