

Triangles (part 4)

$$\sqrt{65}^2 = \sqrt{13}^2 + \sqrt{52}^2$$

$$65 = 13 + 52$$

$$65 = 65$$

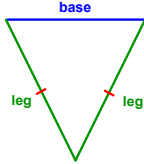
title

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Isosceles Triangles

Legs of an isosceles triangle—the two congruent sides of an isosceles triangle that has only two congruent sides

Base—the noncongruent side of an isosceles triangle that has only two congruent sides

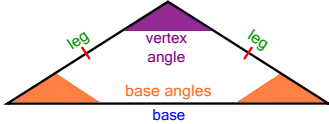


isosceles triangles

Isosceles Triangles

Base angles—the two angles adjacent to the base and opposite the legs of an isosceles triangle

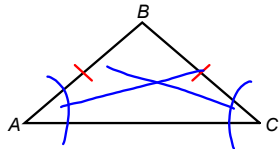
Vertex angle—the angle formed by the legs and opposite the base of an isosceles triangle.



isosceles triangles

Base Angles Theorem

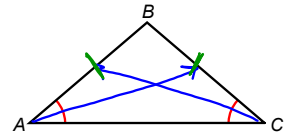
If two sides of a triangle are congruent, then the angles opposite the sides are congruent.



base angles thm

Converse of the Base Angles Theorem

If two angles of a triangle are congruent, then the sides opposite the angles are congruent.



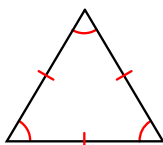
converse of the base angles thm

Corollary to the Base Angles Theorem

★ If a triangle is equilateral, then it is equiangular.

Corollary to the Converse of the Base Angles Theorem

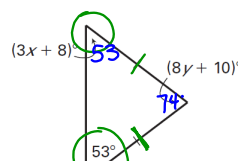
★ If a triangle is equiangular, then it is equilateral.



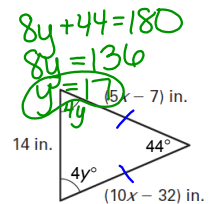
equilateral + equiangular = regular

equilateral & equiangular

Find the values of x and y .



$$\begin{aligned} 3x + 8 &= 53 \\ 3x &= 45 \\ x &= 15 \end{aligned} \quad \begin{aligned} 8y + 10 &= 74 \\ 8y &= 64 \\ y &= 8 \end{aligned}$$



$$\begin{aligned} 8y + 44 &= 180 \\ 8y &= 136 \\ y &= 17 \end{aligned} \quad \begin{aligned} 5x - 7 &= 10x - 32 \\ -7 &= 5x - 32 \\ 25 &= 5x \\ 5 &= x \end{aligned}$$

examples

Find the value of x.

$180 - 36 = 144$
 $\frac{144}{2} = 72$
 $4x - 8 + 72 = 180$
 $4x + 64 = 180$
 $4x = 116$
 $x = 29$

$110 + 26 = 136$
 $180 - 136 = 44$
 $180 = x + 44 + 80$
 $x = 36$
 $90 + 26 + x = 180$
 $116 + x = 180$
 $x = 64$

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Conclusion

1. What is true about the angles of an isosceles triangle?
2. What is true about the sides of an isosceles triangle?
3. Questions????

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Assignment

Triangles Wkst 4

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