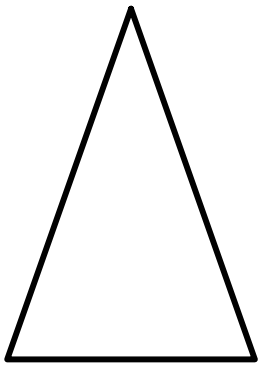
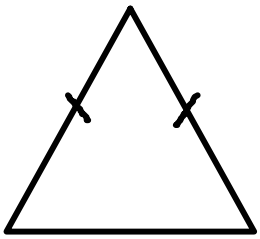
Isosceles Triangles

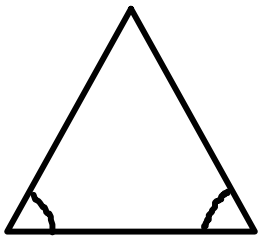
Isosceles Triangle - A triangle with at least two congruent sides.



Isosceles Triangle Theorem - If two sides of a triangle are congruent, then the angles opposite those sides are congruent.

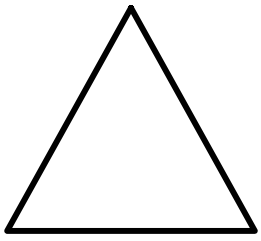


Isosceles Triangle Theorem Converse - If two angles of a triangle are congruent, then the sides opposite those angles are congruent.



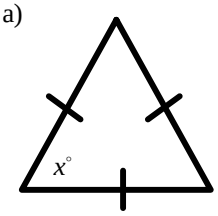
Corollary 1 - A triangle is equilateral if and only if it is equiangular.

Corollary 2 - Each angle of an equilateral triangle measures 60°.

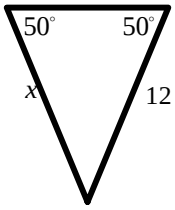


1. Find the value of x.

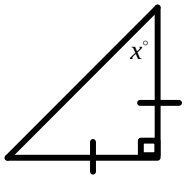
a)



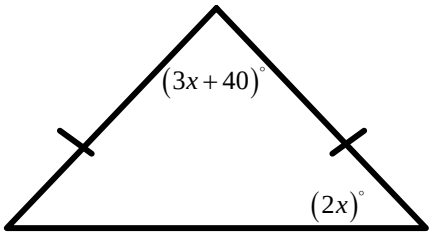
b)



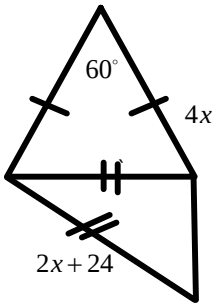
c)



d)



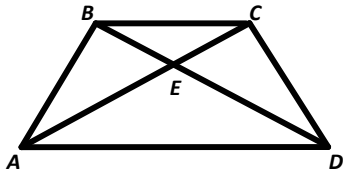
e)



2. In $\triangle ABC$, $\overline{AB} \cong \overline{BC}$, $m\angle A$ is 10 more than twice a number and $m\angle C$ is four less than three times the same number. Find $m\angle B$.

3. Write a two-column proof for each.

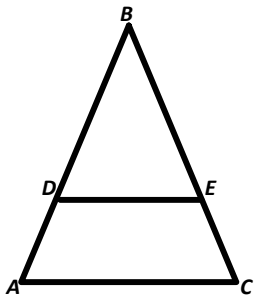
a) Given: $\angle ABD \cong \angle DCA$
$\overline{BA} \cong \overline{CD}$
Prove: $\angle BCA \cong \angle CBD$



Statement	Reason
1. $\angle ABD \cong \angle DCA$ $\overline{BA} \cong \overline{CD}$	1. Given

b) Given: $\triangle ABC$ is an isosceles triangle and $\angle B$ is the vertex
$\overline{DE} \parallel \overline{AC}$

Prove: $\triangle DBE$ is an isosceles triangle



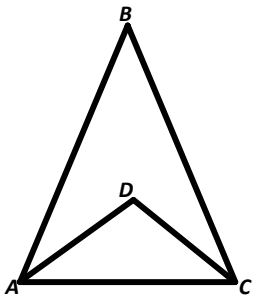
Statement	Reason
1. $\triangle ABC$ is an isosceles triangle and $\angle B$ is the vertex $\overline{DE} \parallel \overline{AC}$	1. Given

c) Given: $\triangle ABC$ is an isosceles triangle and $\overline{AC}$ is the base

$\overline{DC}$ bisects $\angle BCA$

$\overline{DA}$ bisects $\angle BAC$

Prove: $\triangle ADC$ is an isosceles triangle



Statement	Reason
1. $\triangle ABC$ is an isosceles triangle and $\overline{AC}$ is the base $\overline{DC}$ bisects $\angle BCA$ $\overline{DA}$ bisects $\angle BAC$	1. Given