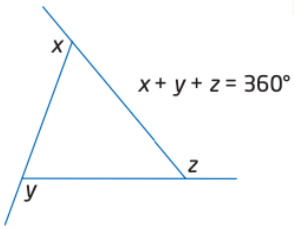
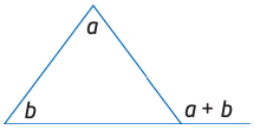
MTH1W

Angle Relationships in Triangles

- The sum of the exterior angles of a triangle is 360°.

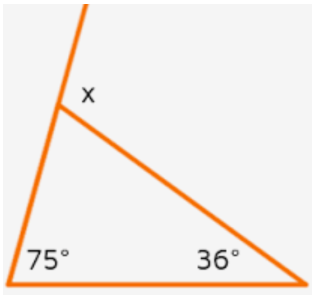


- The exterior angle at each vertex of a triangle is equal to the sum of the interior angles at the other two vertices.



Exercises

a)



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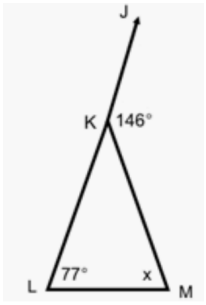

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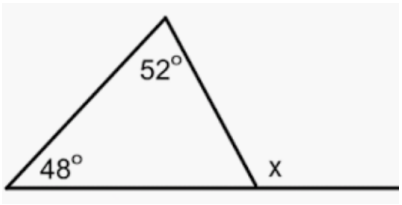
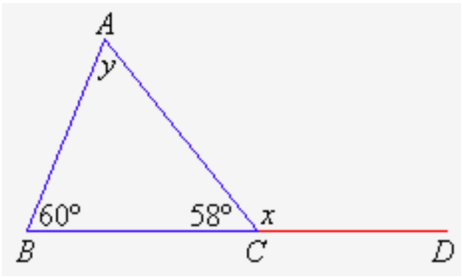
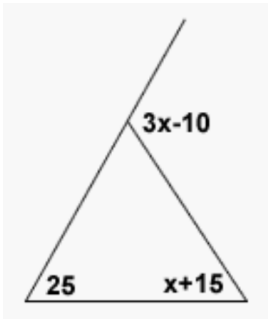


d)

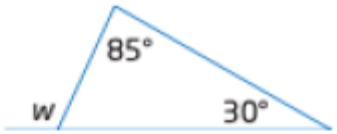


e)



1. Find the measure of each exterior angle.

a)



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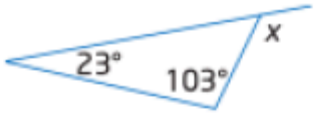

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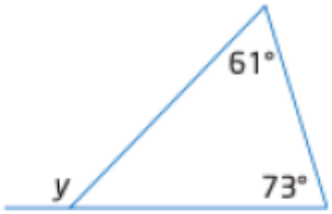

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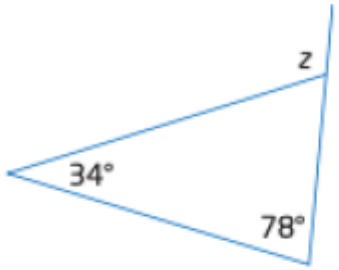
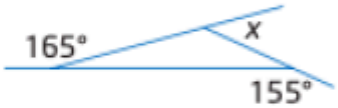


2. Find the measure of each unknown exterior angle.

a)



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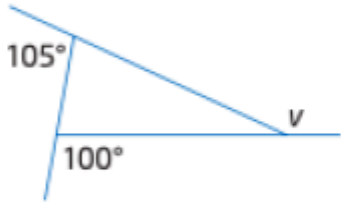

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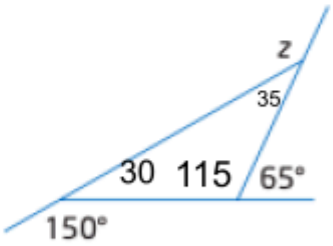


z = 360 - 150 - 65
z = 145

3. If the measures of two of the exterior angles of a triangle are 70° and 120°, the measure of the third exterior angle is

A 10°

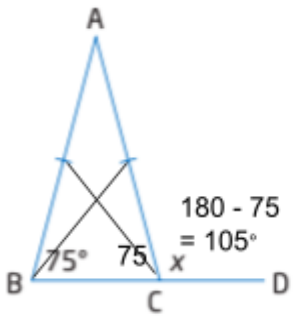
B 70°

C 170°

D 190°

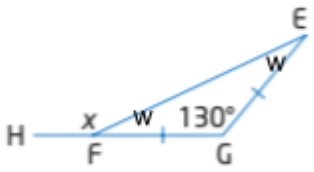
4. Find the measure of the exterior angle labelled x for each isosceles triangle.

a)



180 - 75
= 105°

b)



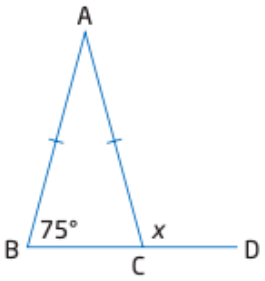
130+w+w = 180
w+w = 180 - 130
w+w = 50
2w = 50

w = 50 / 2
w = 25°

x = 180 - 25
x = 155°

4. Find the measure of the exterior angle labelled x for each isosceles triangle.

a)



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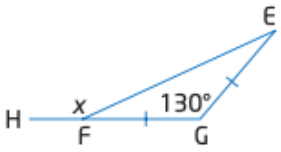
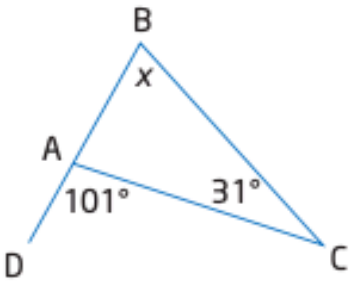


5. Find the measure of each unknown angle.

a)



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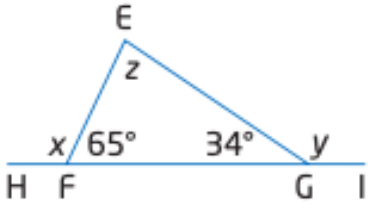
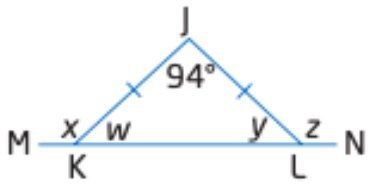
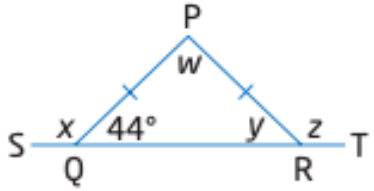


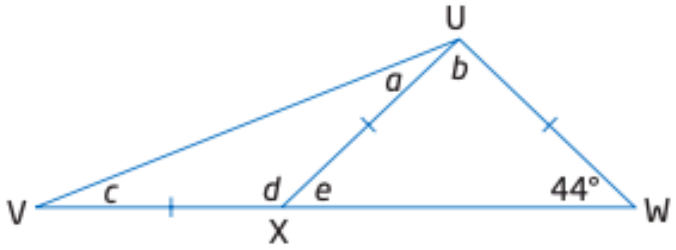
c)



d)



e)



9. a) Explain why a triangle cannot have two obtuse interior angles.

b) Can a triangle have three obtuse exterior angles? Justify your answer.