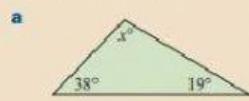


# Angles in Triangle

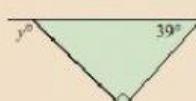


## Example

Find the unknown in the following, giving brief reasons:

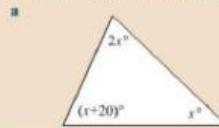


a  $x + 38 + 19 = 180$  {angle sum of a triangle}  
 $\therefore x = 180 - 38 - 19$   
 $\therefore x = 123$



b  $y = 39 + 90$  {exterior angle of a triangle}  
 $\therefore y = 129$

Find the values of the unknowns in each triangle, giving a brief reason:



a  $2x + x + (x + 20) = 180$   
 $\therefore 4x + 20 = 180$   
 $\therefore 4x = 160$   
 $\therefore x = 40$

{angles of a triangle}

b  $a + 140 = 180$  {angles on a line}

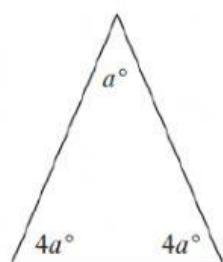
Likewise  $b = 180 - 120 = 60$   
But  $a + b + c = 180$   
 $\therefore 40 + 60 + c = 180$   
 $\therefore 100 + c = 180$   
 $\therefore c = 80$

{angles of a triangle}

## Exercise:

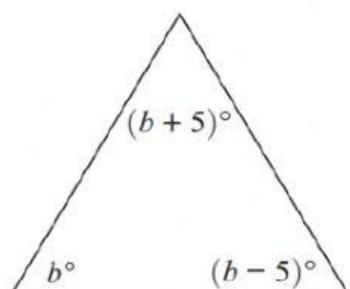
1) Find the values of the unknowns in each triangle, give a brief reasons:

a



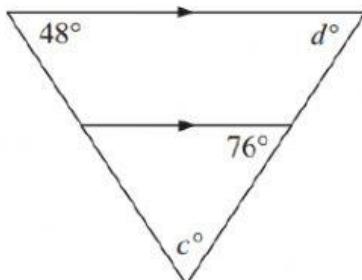
Reason:

b

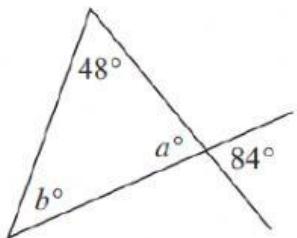


Reason:

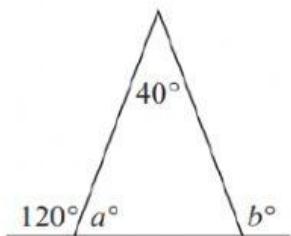
c



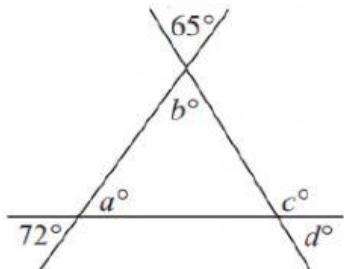
Reason:

**d**


Reason:

**e**


Reason:

**f**


Reason:

2) State whether the following statements are true or false:

- The sum of the angles of a triangle is equal to two right angles.
- A right angled triangle can contain an obtuse angle.
- The sum of two angle of a triangle is always greater than the third angle.
- The two smaller angles of a right angled triangle are supplementary.
- A concave triangle is impossible

<input type="checkbox"/> T	<input type="checkbox"/> F
<input type="checkbox"/>	<input type="checkbox"/>