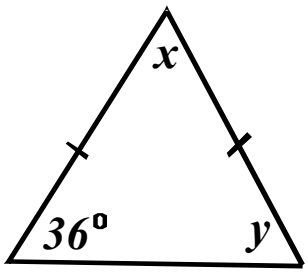
Exercise 2015-8ℰN-00003(1)

(1) Are the following statements true or false?

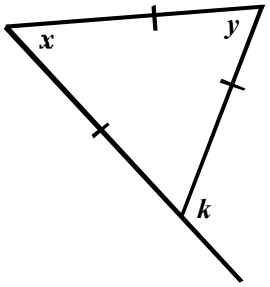
(a) All right- angled triangles are isosceles triangles as well.
(b) The sum of the interior angles of an equilateral triangle is 180°.
(c) The theorem of Pythagoras can only be applied in a right-angled triangle.
(d) The angles opposite the equal sides of an isosceles triangle are equal in size.

(2) Determine the value(s) of *x, y* and/or *k* in each of the following sketches. Also give complete reasons.

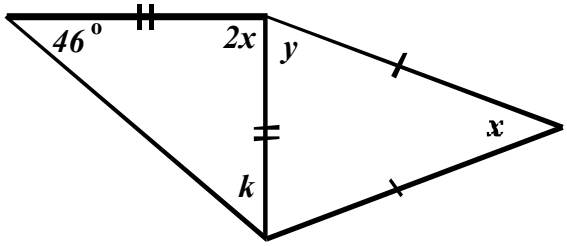
(a)



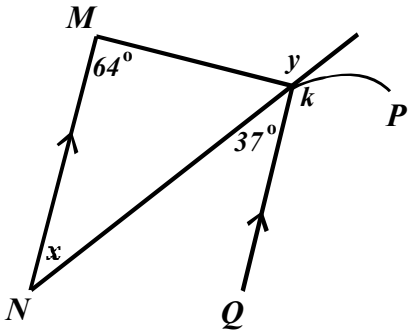
(b)



(c)

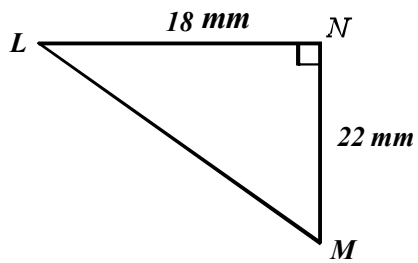


(d)

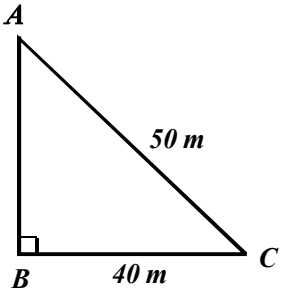


(3) Calculate the length of the unknown side in each of the following:
If necessary, leave your answer in surd form.
Also calculate the area of each triangle.

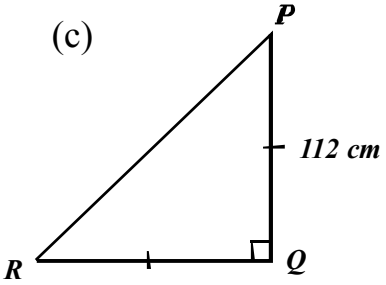
(a)



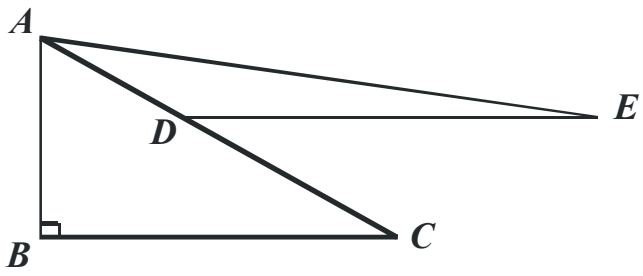
(b)



(c)



(4) In the sketch: $\hat{E} = 5°$, $\hat{C} = 33°$, $B\hat{A}E = 85°$.
AC = 10 cm, BC = 8 cm ,
AD = 4 cm and DE = 12 cm.



(a) Prove that DE // BC. Show all calculations.
(b) Calculate the lengths of AB.
(c) Calculate the areas of Δ ABC and Δ ADE, if possible.

(5) (a) Construct triangles MNT with MN = 7 cm, $\hat{M} = 55° = \hat{N}$.
(b) Bisect MN and label the midpoint of MN as A. Join A with T.
(c) Bisect MT and label the midpoint of MT as B. Join B with N.
(d) Label the intersection of AT and BN as O.
(e) Join M and O and extend MO to intersect TN in C. Measure TC and CN.

(6) Calculate the area of PQRS, if AS = 34 mm, BQ = 16 mm, AB = BR = 7 mm and AP = 6 mm.