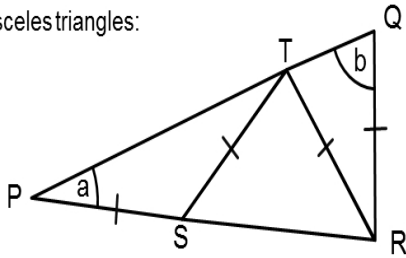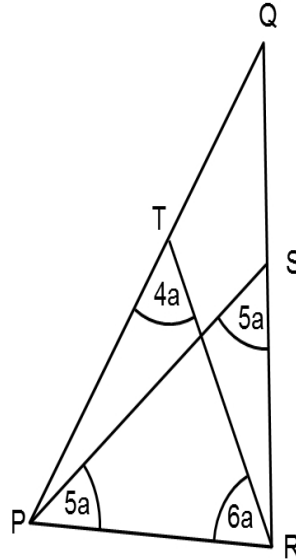isosceles triangle proofs (iv)

(5) a triangle (PQR) is
dissected into three
isosceles triangles:

prove that b = 3a
can triangle PQR be isosceles?
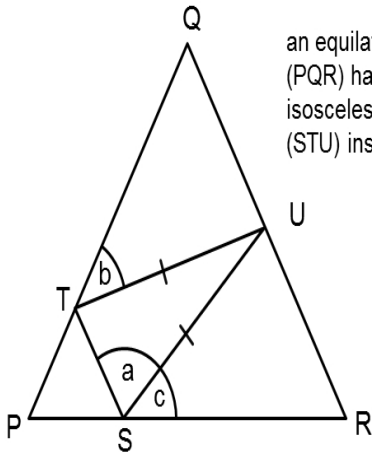
(6) four angles are
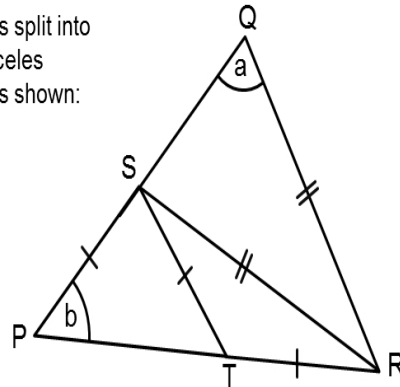as shown

prove that
triangle
PQR is
isosceles

(7) an equilateral triangle
(PQR) has an
isosceles triangle
(STU) inside it

prove that 2a + b + c = 240°

(8) a triangle is split into
three isosceles
triangles as shown:

prove that 3b = 2a
can triangle PQR be isosceles?