Area of a triangle given 3 sides

Heron's formula [Heron of Alexandria (10 – 70 AD)]

The formula is:
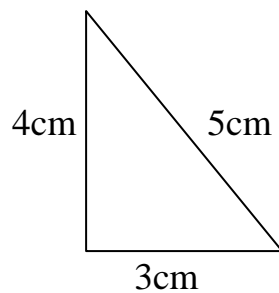
$$A = \sqrt{s(s-a)(s-b)(s-c)}$$

Where: A is the area of the triangle

$$s = \frac{a+b+c}{2}$$

And a, b and c are the sides of the triangle.

Check:

$$s = \frac{3+4+5}{2} = 6$$

And therefore, $A = \sqrt{6(6-3)(6-4)(6-5)}$
$$= 6$$

Exercise: check the units.

Also,

$$A = \frac{1}{2} \times base \times height$$
$$= \frac{1}{2} \times 3 \times 4$$
$$= 6$$

Exercise: find the area of the following triangles given three sides

(1). 5,12,13

(2). 7,24,25

(3). 9,40,41