

Problem Set 5

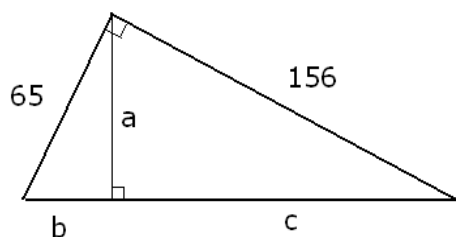
1. Let n and m be positive integers. Define

$$a = n^2 - m^2$$

$$b = 2nm$$

$$c = n^2 + m^2$$

- (a) Find the values of a , b , and c if $n = 2$ and $m = 1$.
(b) Find the values of a , b , and c if $n = 3$ and $m = 2$.
(c) Find the values of a , b , and c if $n = 3$ and $m = 1$.
(d) Do you notice a common behavior among the number triples you obtain in a), b), and c)?
(e) Prove that all number triples we obtain using this formula will display the property found in part d).
2. Find the radius of a circle if we know that an arc subtended by a central angle of 24° has length 100 m.
3. Find the exact value of the length of the main diagonal in a cube with sides 1 ft.
4. Find the exact value of a , b , and c , based on the picture below.



5. Find the perimeter and area of the trapezoid shown on the picture below.

