

Quiz 2

Name: Key*You must show your work to get full credit.*

1. Find all Pythagorean triples of the form $m, m+2, m+4$.

We want $a=m, b=m+2, c=m+4$
with

$$a^2 + b^2 = c^2$$

That is

$$m^2 + (m+2)^2 = (m+4)^2$$

$$m^2 + m^2 + 4m + 4 = m^2 + 8m + 16$$

$$m^2 + (4-8)m + (4-16) = 0$$

$$m^2 - 4m - 12 = 0$$

$$(m-6)(m+2) = 0$$

This has solutions

$$m = -2, 6.$$

We want natural numbers so no
negatives. Thus the only solution
is

$m = 6$. This gives the triple

$$a=6, b=6+2=8, c=6+4=10$$

$$\left[\begin{array}{l} \text{as a check} \\ 6^2 + 8^2 = 36 + 64 = 100 = 10^2 \end{array} \right]$$