

# Attendance Quiz 5

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## Part I

1.) Look up a joke based on the Pythagorean Theorem.

ANS.) Since hippos are so dangerous, zookeepers use the Pythagorean Theorem to find the length of their backs. They find the hippotermuse.

2.) Complete the proof of Pythagorean Triples

ANS.)  $a^2 + b^2 = c^2$ ,  $a = m^2 - n^2$ ,  $b = 2mn$ ,  $c = m^2 + n^2$

$$(m^2 - n^2)^2 + (2mn)^2 = (m^2 + n^2)^2$$

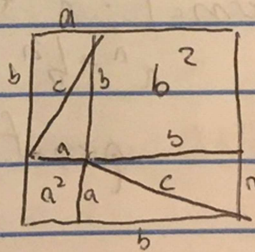
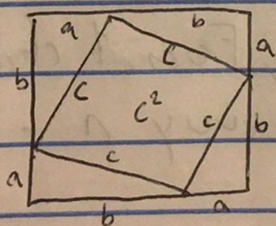
$$m^4 - 2m^2n^2 + n^4 + 4m^2n^2 = m^4 + 2m^2n^2 + n^4$$

$$m^4 + n^4 = m^4 + n^4$$

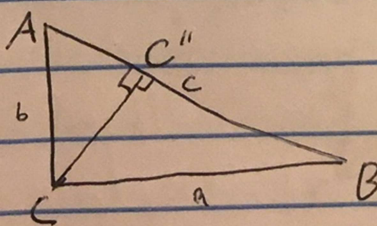
## Part II

1.)  $a^2 + b^2 = c^2$

I)



II)



$$2.) \quad m^2 - a^2, \quad 2ma, \quad m^2 + a^2$$

$$m=2, a=1 : 3, 4, 5$$

$$m=3, a=1 : \del{8, 6, 10}$$

$$m=3, a=2 : 5, 12, 13$$

$$m=4, a=1 : 15, 8, 17$$