2.6

Note for some PPT $c = a + 2$

for example $(3, 4, 5)$

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

$a^2 + b^2 = (a+2)^2$

$b^2 = (a+2)^2 - a^2$

$b^2 = 4a + 4$

$b = \sqrt{4a+4}$

c) $\left(a, \sqrt{4a+4}, a+2\right)$

c)

$b = 2\sqrt{a+1}$, so maybe need $a+1 = n^2$

So subs. back we get $b = 2\sqrt{n^2} = 2n$

So we use that to find a & c as well

$$c = a+2 = \underbrace{a+1}_{n^2} + 1 = n^2+1$$

$$a+1 = n^2$$
$$a = n^2 - 1$$

So our new formulas are

$$a = n^2 - 1$$
$$b = 2n$$
$$c = n^2 + 1$$

$b = \sqrt{4a+4}$

$n = 4a+4$, where n is an integer

$n = 16, 196$

$n = 16 = 4a+4$

$12 = 4a$

$3 = a$

$\sqrt{16} = b = 4$

$3+2=c$

$5=c$

$(3,4,5)$

$n = 196$

$196 = 4a+4$

$192 = 4a$

$48 = a$

$\sqrt{196} = b = 14$

$c = 50$

$(48,14,50)$

$c > 1000$

$a > 998$

$n = 4(998) + 4$

$n > 3996$

$b > \sqrt{3996}$

$\left(a > 998, b > \sqrt{3996}, c > 1000\right)$

$n = 4096 = 4a + 4$

$4092 = 4a$

$1023 = a > 998$

$(1023, \sqrt{4096}, 1025)$

$(1023, 64, 1025)$