$$A^2 - 3B^2 = 13$$

$(A,B) = (4,1)$

$4^2 - 3\left(\sqrt{\frac{3}{3}}\right)^2 = 13$ $\quad 4^2 - 3(1)^2 = 13$

$5^2 - 3\left(\sqrt{\frac{12}{3}}\right)^2 = 13$ $\quad 5^2 - 3(2)^2 = 13$

$(A,B) = (5,2)$

$6^2 - 3\left(\sqrt{23/3}\right)^2 = 13$

$7^2 - 3\left(\sqrt{36/3}\right)^2 = 13$

$8^2 - 3\left(\sqrt{51/3}\right)^2 = 13$

$9^2 - 3\left(\sqrt{68/3}\right)^2 = 13$

$10^2 - 3\left(\sqrt{87/3}\right)^2 = 13$

$(A,B) = (11,6)$

$11^2 - 3\left(\sqrt{108/3}\right)^2 = 13$ $\quad 11^2 - 3(6)^2 = 13$

$12^2 - 3\left(\sqrt{131/3}\right)^2 = 13$

$13^2 - 3\left(\sqrt{156/3}\right)^2 = 13$

$14^2 - 3\left(\sqrt{183/3}\right)^2 = 13$

$15^2 - 3\left(\sqrt{212/3}\right)^2 = 13$

$(A,B) = (16,9)$

$16^2 - 3\left(\sqrt{243/3}\right)^2 = 13$ $\quad 16^2 - 3(9)^2 = 13$

Note: I used the square root notation and fractional 3rds to see a pattern.