February 13th

"Prime numbers of the form 6n+1 can be written in the form $x^2 + 3y^2$."

n=1:

6 x 1 + 1 = 7 which is prime

$7 = 2^2 + 3 \times 1^2$

n=2:

6 x 2 + 1 = 13 which is prime

$13 = 1^2 + 3 \times 2^2$

n=3:

6 x 3 + 1 = 19 which is prime

$19 = 4^2 + 3 \times 1^2$

n=5:

6 x 5 + 1 = 31 which is prime

$31 = 2^2 + 3 \times 3^2$

n=6:

6 x 6 + 1 = 37 which is prime

$37 = 5^2 + 3 \times 2^2$