Math 153
Spring 2019
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MORE EXERCISES RELATED TO `history02.pdf`

5. Prove that the product of four consecutive positive integers is always evenly divisible by 8 (no remainder term).

6. For each of the primes $p = 13, 17, 19$ and 23, find a solution to the Pell equation

$$m^2 \;=\; 1 \,+\, pn^2$$

such that n and m are positive integers. [*Hint and warning:* For one of these value for p, the lowest possible value of n is between 150 and 200, so some sort of program is needed. Fortunately this can be done easily even with a spread sheet: Given n, compute $pn^2 + 1$, take its square root and see if it is an integer, and move on to the next value of n.]

7. Derive the formula for x in the solution to the system of linear equations known as Thymaridas' blossom (see the last few pages of `history02.pdf`).