

p = 2003

Out[*]=

2003

PrimeQ[p]

Out[*]=

True

a = 990

Out[*]=

990

PowerMod[a, (p - 1) / 2, p]

Out[*]=

2002

a = 824

Out[*]=

824

PowerMod[a, (p - 1) / 2, p]

Out[*]=

1

PowerMod[a, 1001, p]

Out[*]=

1

PowerMod[824, 501, 2003]

Out[*]=

1909

Mod[-1909, p]

Out[*]=

94

Mod[94^2, p]

Out[*]=

824

Mod[1909^2, p]

Out[*]=

824