
Math 4362 - Number Theory
Homework 8
Due in Class - Thursday November 29, 2018

1. Evaluate the following Legendre symbols:

(a) $\left(\frac{317}{727}\right)$

(b) $\left(\frac{19}{331}\right)$

(c) $\left(\frac{43}{491}\right)$

(d) $\left(\frac{1015}{1019}\right)$

(e) $\left(\frac{285}{293}\right)$

2. For p an odd prime, prove that

$$\left(\frac{7}{p}\right) = \begin{cases} +1 & \text{if } p \equiv 1, 3, 9, 19, 25, 27 \pmod{28}, \\ -1 & \text{if } p \equiv 5, 11, 13, 15, 17, 23 \pmod{28}. \end{cases}$$