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Formulas for the Fourier Coefficients of Cusp Form for Some Quadratic Forms

of

**Mathematics** 

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Abstract: In this paper, representations of positive integers by certain quadratic forms  $Q_p$  defined for odd prime p are examined. The number of representations of positive integer n by the quadratic form  $Q_p$ , is denoted by  $r(n;Q_p)$ , obtained for p=3,5 and 7.\thinspace We prove that  $r(n;Q_p)=\rho$   $(n;Q_p)+\vormalfont{vartheta}$   $(n;Q_p)$  for p=3,5 and 7, where  $\rho$   $(n;Q_p)$  is the singular series and \vartheta  $(n;Q_p)$  is the Fourier coefficient of cusp form.

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**Key Words:** representation of numbers, quadratic forms, generalized theta series, Fourier coefficient of cusp forms

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