```
> GrossPizerPrasadEigenspaces(37,3,Newforms("333k2"));
------------Quaternion-Algebra-and-Order------
Quaternion Algebra with base ring Rational Field, defined by i^2 =
-1, j^2 = -3
3
-----------------------------------------------
Order of Quaternion Algebra with base ring Rational Field, defined
by i^2 = -1,
j^2 = -3
with coefficient ring Integer Ring
[ 1, -1/2 + 1/2*j, 37*k, 3/2*i - 53/2*k ]
333
-----------------------------------------------
Brandt module of level (3,111), dimension 28, and degree 28 over
Integer Ring
------------Permutation-Matrix----------------
[1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0]
[0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0]
[0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0]
[0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0]
[0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0]
[0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0]
[0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0]
[0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0]
[0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0]
[0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0]
[0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0]
[0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0]
[0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0]
[0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0]
[0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0]
[0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0]
[0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0]
[0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0]
[0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0]
[0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0]
[0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0]
[0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0]
[0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0]
[0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0]
[0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0]
[0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0]
[0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0]
[0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0]
[0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0]
[0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0]
[0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1]
[0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0]
-----------------------------------------------
Squared is identity.
------------Modular-form---------------------
q + q^2 - q^4 - 2*q^5 - 4*q^7 - 3*q^8 - 2*q^10 + 4*q^11 + O(q^12)
------------Vectors-and-action-of-Matrix------
[
    (0 0 0 0 0 0 1 -1 -1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 -1 -1 1),
    (0 0 0 0 0 0 -1 1 1 -1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 -1 1 1 -1)
]
[
```

```
    (0 0 0 0 0 0 0 0 0 0 1 -1 -1 1 0 0 0 0 0 0 -1 1 -1 1 0 0 0 0),
    (0 0 0 0 0 0 0 0 0 0 1 -1 -1 1 0 0 0 0 0 0 -1 1 -1 1 0 0 0 0)
]
------------Modular-form----------------------
q - q^2 - q^4 + 2*q^5 - 4*q^7 + 3*q^8 - 2*q^10 - 4*q^11 + O(q^12)
------------Vectors-and-action-of-Matrix------
[
    (0 0 0 0 0 0 0 0 0 0 1 -1 -1 1 0 0 0 0 0 0 1 -1 1 -1 0 0 0 0),
    (0 0 0 0 0 0 0 0 0 0 1 -1 -1 1 0 0 0 0 0 0 1 -1 1 -1 0 0 0 0)
]
[
    (0 0 0 0 0 0 1 -1 -1 1 0 0 0 0 0 0 0 0 0 0 0 0 -1 1 1 -1),
    (0 0 0 0 0 0 -1 1 1 -1 0 0 0 0 0 0 0 0 0 0 0 0 1 -1 -1 1)
]
------------Modular-form----------------------
q + 2*q^2 + 2*q^4 + 2*q^5 - q^7 + 4*q^10 + 5*q^11 + O(q^12)
------------Vectors-and-action-of-Matrix------
------------Modular-form----------------------
q - 2*q^4 - q^7 - 3*q^11 + O(q^12)
------------Vectors-and-action-of-Matrix------
------------Modular-form----------------------
q + a*q^2 + (a^2 - 2)*q^4 + (a^2 - 5)*q^5 + (-2*a^2 - 2*a + 4)*q^7 +
(-3*a^2 -
    3*a + 5)*q^8 + (-3*a^2 - 4*a + 5)*q^10 + (-2*a^2 - 4*a + 2)*q^11
+ O(q^12)
----------------------
Field of definition is not Q.
------------Modular-form----------------------
q + a*q^2 + (a^2 - 2)*q^4 + (-a^3 + 5*a)*q^5 + 2*q^7 + (a^3 -
4*a)*q^8 + (-a^2 +
    3)*q^10 + O(q^12)
----------------------
Field of definition is not Q.
------------Modular-form----------------------
q + a*q^2 + (a^2 - 2)*q^4 + (-a^3 + 2*a^2 + 3*a - 4)*q^5 + (-2*a^3 +
2*a^2 + 8*a
    - 2)*q^7 + (a^3 - 4*a)*q^8 + (2*a^3 - 3*a^2 - 6*a + 5)*q^10 +
(-2*a^2 +
    6)*q^11 + O(q^12)
----------------------
Field of definition is not Q.
-----------------------------------------------
```