```
> GrossPizerPrasadEigenspaces(43,3,Newforms("387k2"));


------------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, 43*k, 3/2*i - 73/2*k ]
387
----------------------------------------------
Brandt module of level (3,129), dimension 32, and degree 32 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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]
----------------------------------------------
Squared is identity.
------------Modular-form---------------------
q + q^2 - q^4 - q^5 - 3*q^7 - 3*q^8 - q^10 - 3*q^11 + O(q^12)
```

```
------------Vectors-and-action-of-Matrix------
[
    (0 0 0 0 0 0 0 0 0 0 0 0 1 -1 1 -1 0 0 0 0 0 0 0 0 1 -1 1 -1 0 0
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 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 0 0 0 0 0 0 0 0 0 0 1 -1
1 -1),
    (0 0 0 0 0 0 0 0 -1 1 -1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 -1 1
-1 1)
]
------------Modular-form----------------------
q - q^2 - q^4 + q^5 - 3*q^7 + 3*q^8 - q^10 + 3*q^11 + O(q^12)
------------Vectors-and-action-of-Matrix------
[
    (0 0 0 0 0 0 0 0 1 -1 1 -1 0 0 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 -1 1 -1 1 0 0 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 0 0 1 -1 1 -1 0 0 0 0 0 0 0 0 -1 1 -1 1 0 0
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 -1 1 -1 1 0 0
0 0)
]
------------Modular-form----------------------
q - 2*q^4 + 2*q^5 - 2*q^7 + 5*q^11 + O(q^12)
------------Vectors-and-action-of-Matrix------
[
    (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
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
0 0)
]
------------Modular-form----------------------
q - q^2 - q^4 - 2*q^5 + 3*q^8 + 2*q^10 + O(q^12)
------------Vectors-and-action-of-Matrix------
[
    (1 1 1 1 -1 -1 -1 -1 -1 -1 -1 -1 1 1 1 1 -1 -1 -1 -1 1 1 1 1 1 1
1 1 -1 -1
        -1 -1),
    (1 1 1 1 -1 -1 -1 -1 -1 -1 -1 -1 1 1 1 1 -1 -1 -1 -1 1 1 1 1 1 1
1 1 -1 -1
        -1 -1)
]
------------Modular-form----------------------
q + 2*q^2 + 2*q^4 + 4*q^5 + 8*q^10 - 3*q^11 + O(q^12)
------------Vectors-and-action-of-Matrix------
------------Modular-form----------------------
q - 2*q^4 + a*q^5 + 2*q^7 - 3/2*a*q^11 + O(q^12)
----------------------
```

```
Field of definition is not Q.
------------Modular-form----------------------
q + a*q^2 + (-a - 2)*q^5 + (-a - 2)*q^7 - 2*a*q^8 + (-2*a - 2)*q^10
+ (2*a +
    1)*q^11 + O(q^12)
----------------------
Field of definition is not Q.
------------Modular-form----------------------
q + a*q^2 + (-2*a - 1)*q^4 + (-a - 2)*q^5 + (2*a + 3)*q^7 + (a -
2)*q^8 - q^10 +
    (-a - 4)*q^11 + O(q^12)
----------------------
Field of definition is not Q.
------------Modular-form----------------------
q + a*q^2 + (a^2 - 2)*q^4 + (-a + 2)*q^5 + (-a^2 + 6)*q^7 + (2*a^2 +
a - 8)*q^8
    + (-a^2 + 2*a)*q^10 + (-a^2 - a + 5)*q^11 + O(q^12)
----------------------
Field of definition is not Q.
------------Modular-form----------------------
q + 1/24*(-a^3 + 37*a)*q^2 + 3*q^4 + 1/24*(a^3 - 13*a)*q^5 + 1/3*(-
a^2 + 13)*q^7
    + 1/24*(-a^3 + 37*a)*q^8 + 1/3*(a^2 - 7)*q^10 + 1/24*(a^3 -
13*a)*q^11 +
    O(q^12)
----------------------
Field of definition is not Q.
-----------------------------------------------
>
```