Selecting eigenvectors by inspection

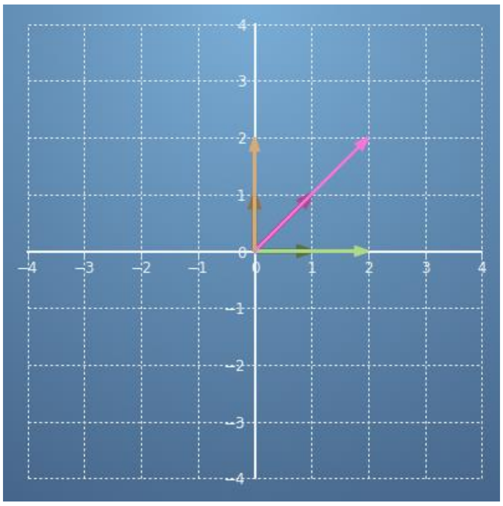
TOTAL POINTS 6

1.Question 1

Recall that for a linear transformation, an eigenvector is a vector which, after applying the transformation, stays in the same span. In the following questions, you will try to geometrically see which vectors of a linear transformation are eigenvectors.

In the following diagram, the dark green vector is given by [1 0], the purple vector by [1 1] and the brown vector by [0 1].

The transformation *T* = [[2 0], [0 2]] is applied, which sends the three vectors to the light green vector [20], the magenta vector [2 2] and the orange vector [0 2], respectively.



Which of the three original vectors are eigenvectors of the linear transformation *T*?

1 / 1 point

- [x] [1 0]
- [x] [1 1]
- [x] [0 1]
- [ ] None of the above.

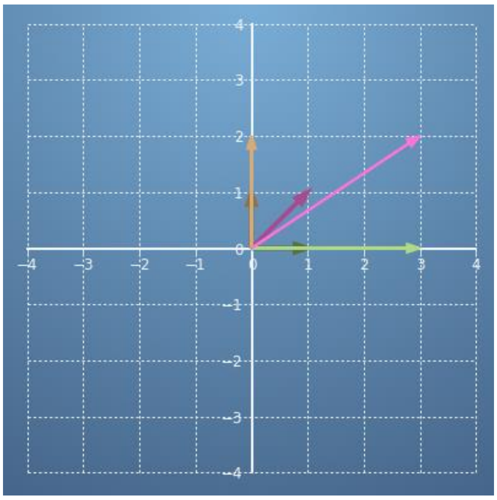
2.Question 2

Recall that for a linear transformation, an eigenvector is a vector which, after applying the transformation, stays in the same span. In the following

questions, you will try to geometrically see which vectors of a linear transformation are eigenvectors.

In the following diagram, the dark green vector is given by [1 0], the purple vector by [1 1] and the brown vector by [0 1].

The transformation *T* = [[3 0], [0 2]] is applied, which sends the three vectors to the light green vector [3 0], the magenta vector [3 2] and the orange vector [0 2], respectively.



Which of the three original vectors are eigenvectors of the linear transformation T*T*?

1 / 1 point

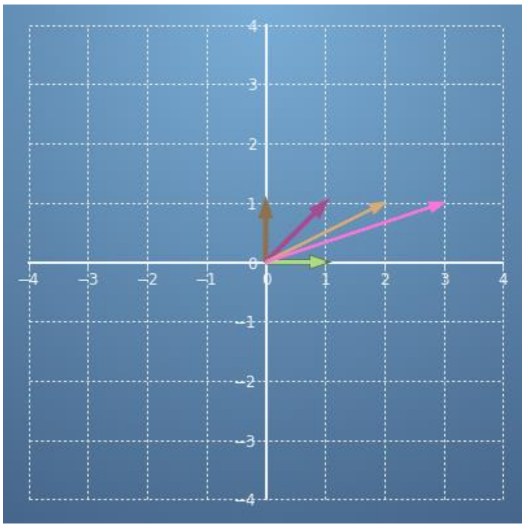
- [x] [1 0]
- [ ] [1 1]
- [x] [0 1]
- [ ] None of the above.

3.Question 3

Recall that for a linear transformation, an eigenvector is a vector which, after applying the transformation, stays in the same span. In the following questions, you will try to geometrically see which vectors of a linear transformation are eigenvectors.

In the following diagram, the dark green vector is given by [1 0], the purple vector by [1 1] and the brown vector by [0 1].

The transformation T = [[1 0], [2 1]] is applied, which sends the three vectors to the light green vector [1 0], the magenta vector [3 1] and the orange vector [2 1], respectively.



Which of the three original vectors are eigenvectors of the linear transformation T?

1 / 1 point

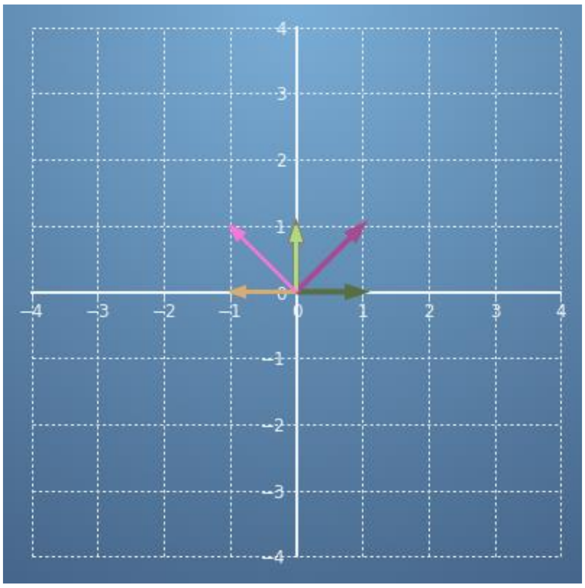
- [x] [1 0]
- [ ] [1 1]
- [ ] [0 1]
- [ ] None of the above.

4.Question 4

Recall that for a linear transformation, an eigenvector is a vector which, after applying the transformation, stays in the same span. In the following questions, you will try to geometrically see which vectors of a linear transformation are eigenvectors.

In the following diagram, the dark green vector is given by [1 0], the purple vector by [1 1] and the brown vector by [0 1].

The transformation T = [0 1], [−1 0]] is applied, which sends the three vectors to the light green vector [0 1], the magenta vector [−1 1] and the orange vector [−1 0], respectively.



Which of the three original vectors are eigenvectors of the linear transformation *T*? Select all correct answers.

1 / 1 point

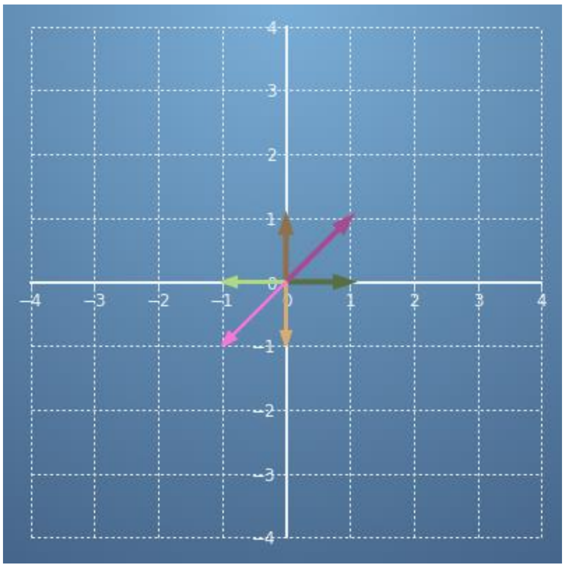
- ☐ [1 0]
- ☐ [1 1]
- ☐ [0 1]
- ☑ None of the above.

5.Question 5

Recall that for a linear transformation, an eigenvector is a vector which, after applying the transformation, stays in the same span. In the following questions, you will try to geometrically see which vectors of a linear transformation are eigenvectors.

In the following diagram, the dark green vector is given by [1 0], the purple vector by [1 1] and the brown vector by [0 1].

The transformation *T* = [−1 0], [0 −1]] is applied, which sends the three vectors to the light green vector [−1 0], the magenta vector [−1 −1] and the orange vector [0 −1], respectively.



Which of the three original vectors are eigenvectors of the linear transformation *T*?

1 / 1 point

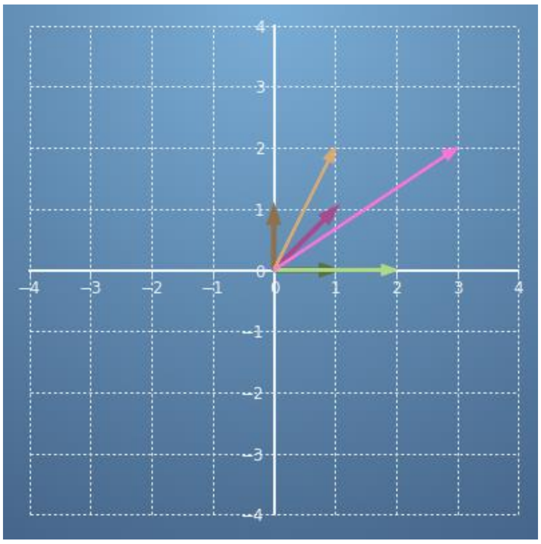
- [x] [1 0]
- [x] [1 1]
- [x] [0 1]
- [ ] None of the above

6.Question 6

Recall that for a linear transformation, an eigenvector is a vector which, after applying the transformation, stays in the same span. In the following questions, you will try to geometrically see which vectors of a linear transformation are eigenvectors.

In the following diagram, the dark green vector is given by [1 0], the purple vector by [1 1] and the brown vector by [0 1].

The transformation *T* = [2 0], [1 2]] is applied, which sends the three vectors to the light green vector [2 0], the magenta vector [3 2] and the orange vector [1 2], respectively.



Which of the three original vectors are eigenvectors of the linear transformation T*T*?

1 / 1 point

- ☐ [1 0]
- ☐ [1 1]
- ☐ [0 1]
- ☐ None of the above.