1. PCA is technique for... (**Note:** you can select multiple answers)

- [ ] dimensionality reduction
- [ ] data augmentation
- [ ] feature extraction
- [ ] variance normalisation

2. When performing PCA we want to:

- ○ find orthogonal vectors
- ○ estimate the number of dimensions
- ○ find the most meaningful basis
- ○ find the components of the dataset

3. Every observation (i.e. a vector with dimensionality m) in the dataset can be represented as:

- ○ linear combination of some basis vectors
- ○ unit vectors
- ○ linear combination of some unit vectors
- ○ a set of orthonormal vectors

4. We assume that the signal of interest is

- ○ along the direction with the largest average
- ○ along the direction with the largest variance
- ○ along the direction with the smallest variance
- ○ along the direction of one of the naive basis vectors

5. One of the key ideas for solving PCA with eigenvalue decomposition is that a symmetric matrix can be diagonalized by an orthogonal matrix of its eigenvectors.

- ○ True
- ○ False

6. If p_1 and p_2 are both principal components vectors, what statements are correct about them? **Note:** you can select multiple answers

- [ ] p_1 is orthogonal to p_2
- [ ] p_1 is parallel to p_2
- [ ] variance along p_1 is bigger than variance along p_2
- [ ] variance along p_2 is bigger than variance along p_1