**First Question**

Prove the 3 important convolution features.

**Answer**

**Second Question**

Prove which of these 4 systems are translation invariant?

**Answer**

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**Third Question**

Calculate the length of 2+3j.

**Answer**

To calculate the length of this vector, first we can calculate the conjugate of 2+3j which is 2-3j and inner product them together:

And finally, taking square root of the result number will give us the answer:

The codes and resources can be found in this repository:

<https://github.com/maktoobgar/image_processing>