

Syntax:

The input x must be a vector.

(1)DCT(Discrete Cosine Transform)

```
X_dct = DCT(x);
```

```
% X_dct = DCT(x) computes the Discrete Cosine Transform (DCT).
```

```
% The sequence x must exhibit even symmetry (i.e.,  $x[n] = x[N-n]$ ), where  $N$  is the length of  $x$ .
```

```
% The length of X_dct is  $(\text{floor}(\text{length}(x)/2) + 1)$ .
```

(2)DST(Discrete Sine Transform)

```
X_dst = DST(x);
```

```
% X_dst = DST(x) computes the Discrete Sine Transform (DST).
```

```
% The sequence x must exhibit odd symmetry (i.e.,  $x[n] = -x[N-n]$ ), where  $N$  is the length of  $x$ .
```

```
% The length of X_dst is  $(\text{floor}(\text{length}(x)/2) - 1)$ .
```

(3)DHT(Discrete Hartley Transform)

```
X_dht = DHT(x);
```

```
% X_dht = DHT(x) computes the Discrete Hartley Transform (DHT).
```

```
% The sequence x must be real.
```

```
% The length of X_dht matches the length of x.
```

Example:

Written in Example.m

Result:

Written in Result.pdf

Function code:

DCT.m

DST.m

DHT.m