In [ ]:
```
%matplotlib inline
```

In [ ]:
```
import numpy as np
import matplotlib.pyplot as plt
from scipy.interpolate import interp1d
```

In [ ]:
```
x = np.linspace(0, 10, num=11, endpoint=True)
y = np.cos(-x**2/9.0)
f = interp1d(x, y)
x2 = np.linspace(0, 10, num=30, endpoint=True)
y2 = np.sin(-x2**2/9.0)
f2 = interp1d(x2, y2)
```

In [ ]:
```
xnew = np.linspace(0, 10, num=41, endpoint=True)
plt.plot(x, y, 'o', xnew, f(xnew), '-', x2, y2, 'x', xnew, f2(xnew), '--')
```