In [81]:
```python
import numpy as np

# Dataset
data = np.array([[-2,-3], [-1,1], [0,2], [1,3], [2,5], [3,7], [4,10]])

# Linear fit
n = len(data)
x = data[:,0]
y = data[:,1]
A = np.vstack([x, np.ones(n)]).T
b = y
m, c = np.linalg.lstsq(A, b, rcond=None)[0]
print("Linear fit: y = {:.2f}x + {:.2f}".format(m, c))

# Cubic fit
X = np.vstack([np.ones(n), x, x**3, x**4]).T
Y = y.reshape(-1, 1)
coeffs, residuals, _, _ = np.linalg.lstsq(X, Y, rcond=None)
b, c, d, a = coeffs.flatten()
print("Cubic fit: y = {:.2f}x^3 + {:.2f}x^2 + {:.2f}x + {:.2f}".format(a, b, c, d))


# Linear fit SSR
y_pred_lin = m*x + c
ssr_lin = np.sum((y - y_pred_lin)**2)
print("Linear fit SSR: {:.2f}".format(ssr_lin))

# Cubic fit SSR
y_pred_cub = a*x**3 + b*x**2 + c*x + d
ssr_cub = np.sum((y - y_pred_cub)**2)
print("Cubic fit SSR: {:.2f}".format(ssr_cub))
```

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Linear fit: y = 1.93x + 1.64
Cubic fit: y = -0.05x^3 + 1.89x^2 + 0.68x + 0.30
Linear fit SSR: 10.12
Cubic fit SSR: 624.75
```

In [ ]: