

Interlude 1: Exercise 1

Explanation

This is a straightforward exercise in plotting points in a coordinate system. In the first edition, the last formula should read $x(t) = \sin^2 t - \cos t$.

Hint

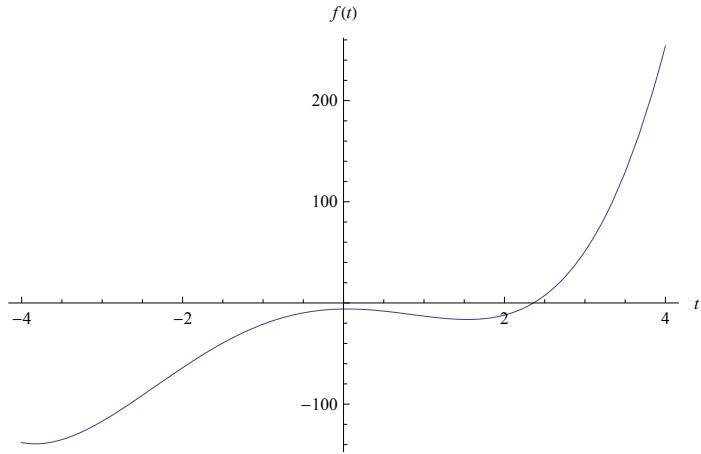
Begin by entering the formula into your graphing system. Then set the range of the graphing.

Answer

■ $f(t) = t^4 + 3t^3 - 12t^2 + t - 6$

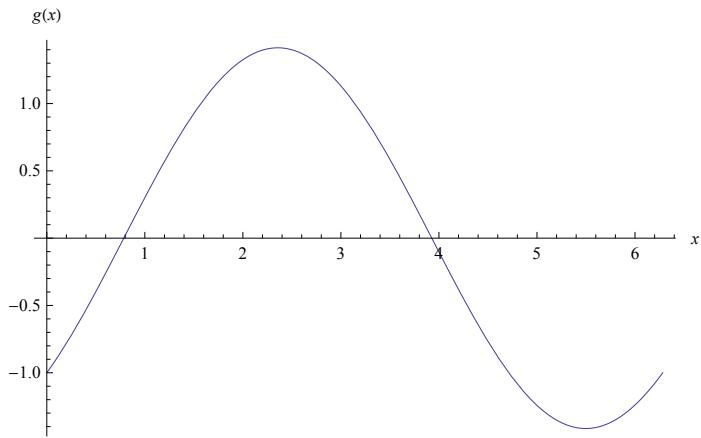
In *Mathematica* we write,

```
Plot[t^4 + 3 t^3 - 12 t^2 + t - 6, {t, -4, 4}, AxesLabel → {t, f[t]}]
```



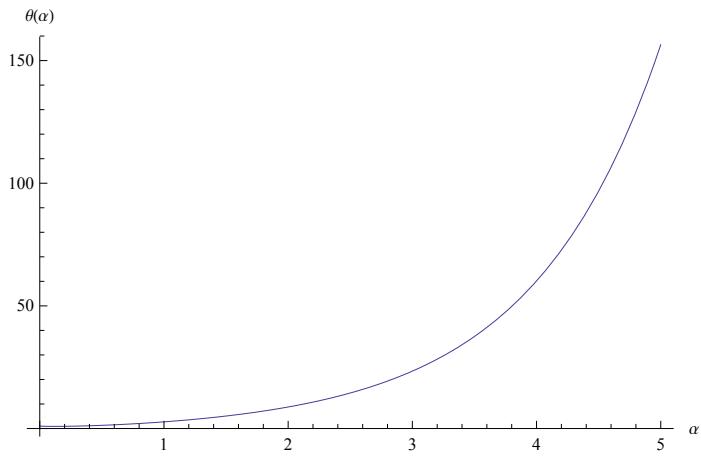
■ $g(x) = \sin x - \cos x$

```
Plot[Sin[x] - Cos[x], {x, 0, 2 π}, AxesLabel → {x, g[x]}]
```



■ $\theta(\alpha) = e^\alpha + \alpha \ln \alpha$

```
Plot[Exp[α] + α Log[α], {α, 0, 5}, AxesLabel → {α, θ[α]}]
```



■ $x(t) = \sin^2 t + \cos t$

```
Plot[Sin[t]^2 + Cos[t], {t, 0, 2 π}, AxesLabel → {t, x[t]}]
```

