

sible to assign 8 to a variable, and then use the variable when the function is typed in the `fplot` command.

- The function to be plotted can be typed as a function of any letter. For example, the function in the previous paragraph can be typed as `@ (t) 8*t.^2+5*cos (t)` or `@ (z) 8*z.^2+5*cos (z)'`.

limits: The limits argument is a vector with two elements that specify the domain of x [x_{\min} , x_{\max}], or a vector with four elements that specifies the domain of x and the limits of the y -axis [x_{\min} , x_{\max} , y_{\min} , y_{\max}].

line specifiers: The line specifiers are the same as in the `plot` command. For example, a plot of the function $y = x^2 + 4\sin(2x) - 1$ for $-3 \leq x \leq 3$ can be created with the `fplot` command by typing:

```
>> fplot(@ (x) x.^2+4*sin(2*x)-1, [-3 3])
```

in the Command Window. The figure that is obtained in the Figure Window is shown in Figure 5-6.

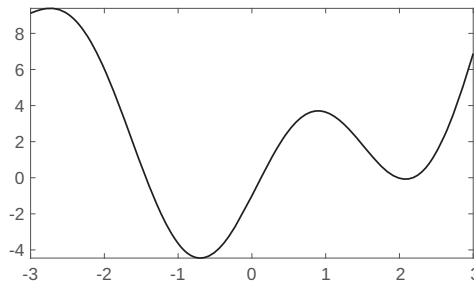


Figure 5-6: A plot of the function $y = x^2 + 4\sin(2x) - 1$.

5.3 PLOTTING MULTIPLE GRAPHS IN THE SAME PLOT

In many situations, there is a need to make several graphs in the same plot. This is shown, for example, in Figure 5-1 where two graphs are plotted in the same figure. There are three methods to plot multiple graphs in one figure. One is by using the `plot` command, the second is by using the `hold on` and `hold off` commands, and the third is by using the `line` command.

5.3.1 Using the `plot` Command

Two or more graphs can be created in the same plot by typing pairs of vectors inside the `plot` command. The command

```
plot(x,y,u,v,t,h)
```

creates three graphs— y vs. x , v vs. u , and h vs. t —all in the same plot. The vectors of each pair must be of the same length. MATLAB automatically plots the graphs in different colors so that they can be identified. It is also possible to add