

```
Terminal -
# basic usage - just 2 steps

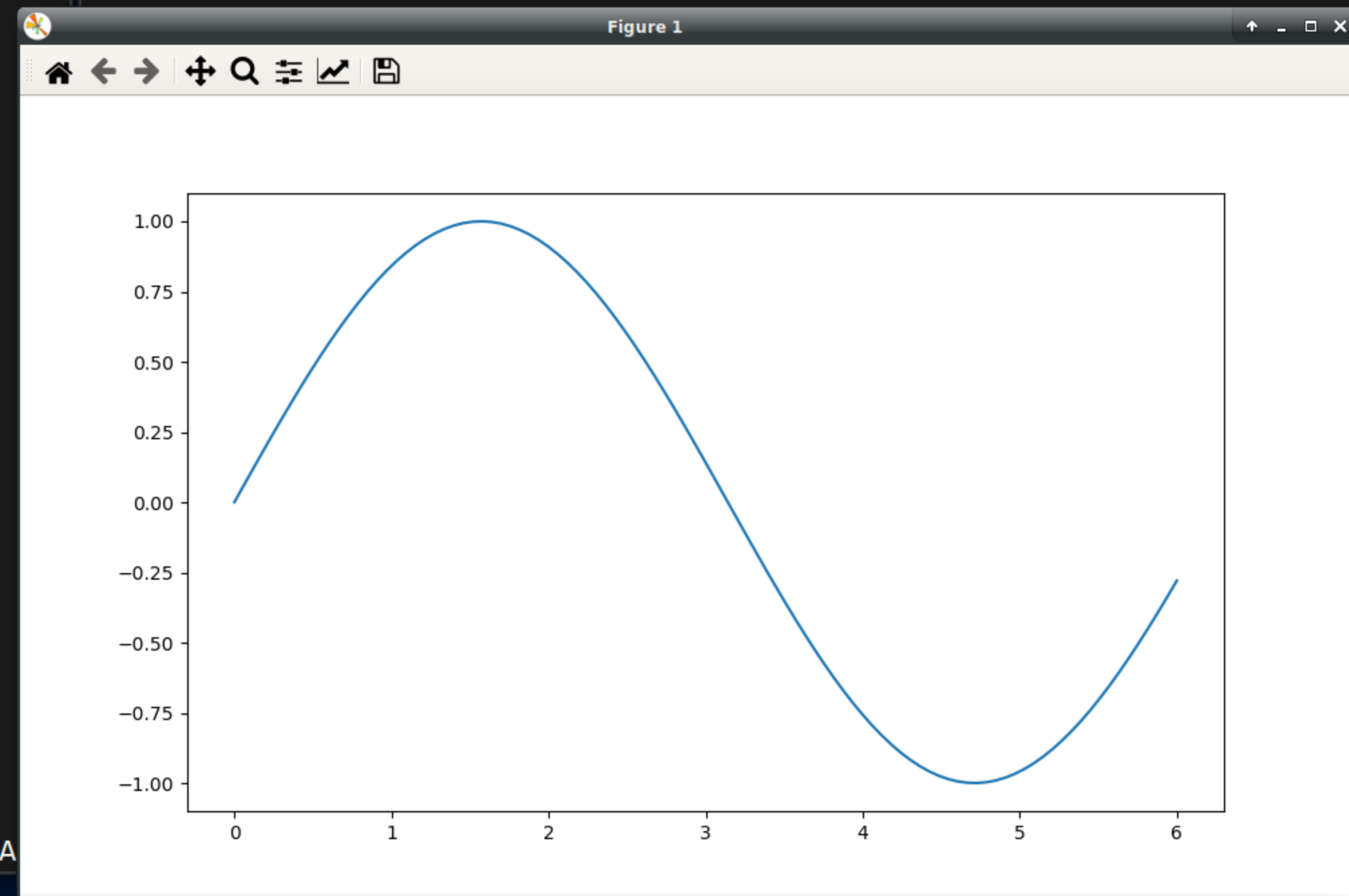
import numpy as np
import matplotlib.pyplot as plt

x = np.linspace(0, 6, 100)
y = np.sin(x)

plt.plot(x, y)
plt.show()
```

"plot00.py" 10L, 150C 1,1 A

```
Terminal -
=>python plot00.py
```



```
Terminal -
# basic usage - just 2 steps

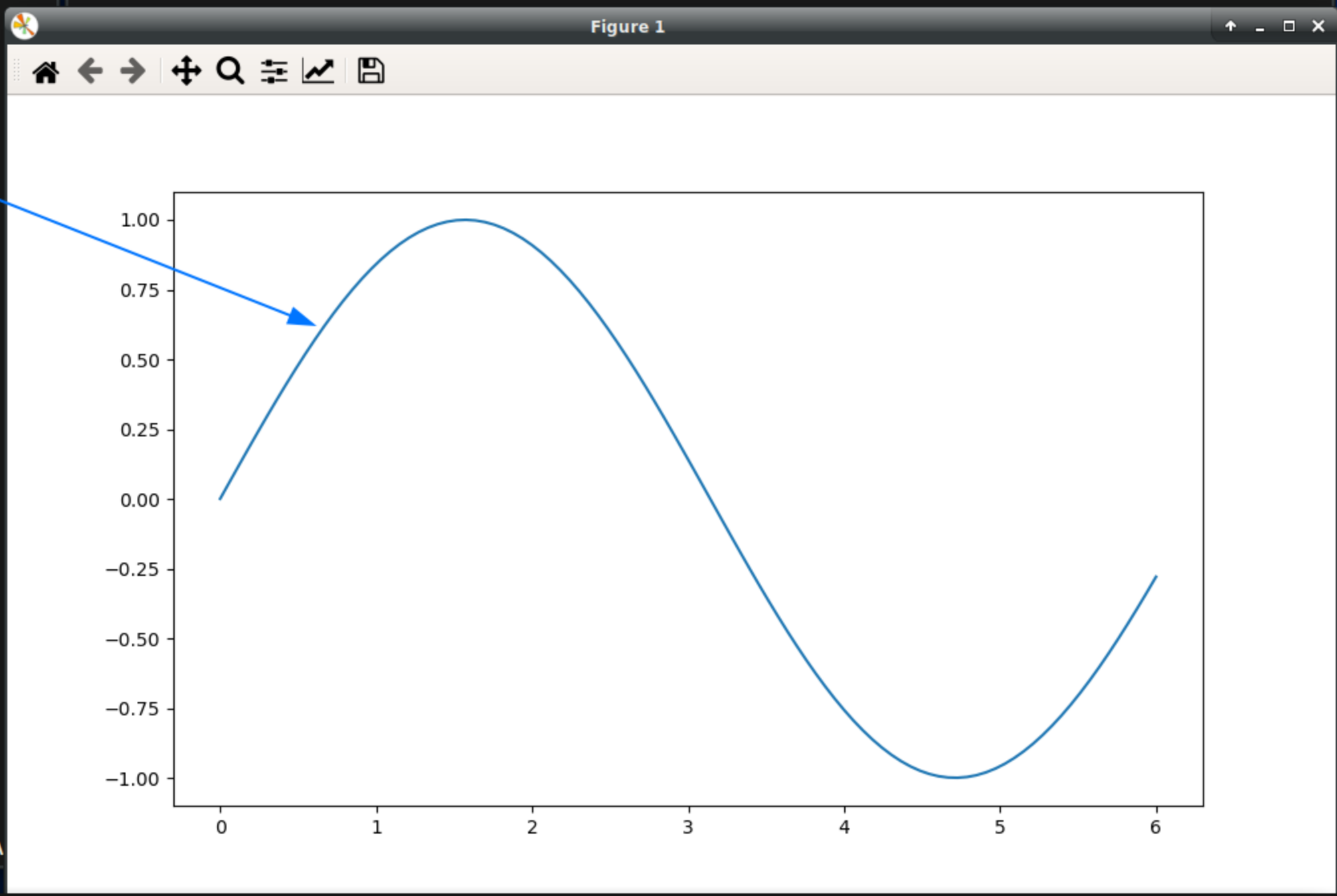
import numpy as np
import matplotlib.pyplot as plt

x = np.linspace(0, 6, 100)
y = np.sin(x)

plt.plot(x, y)
plt.show()
```

"plot00.py" 10L, 150C

```
Terminal -
=>python plot00.py
```



```
Terminal -
# multiple lines on the same figure
# (each line with its own style)

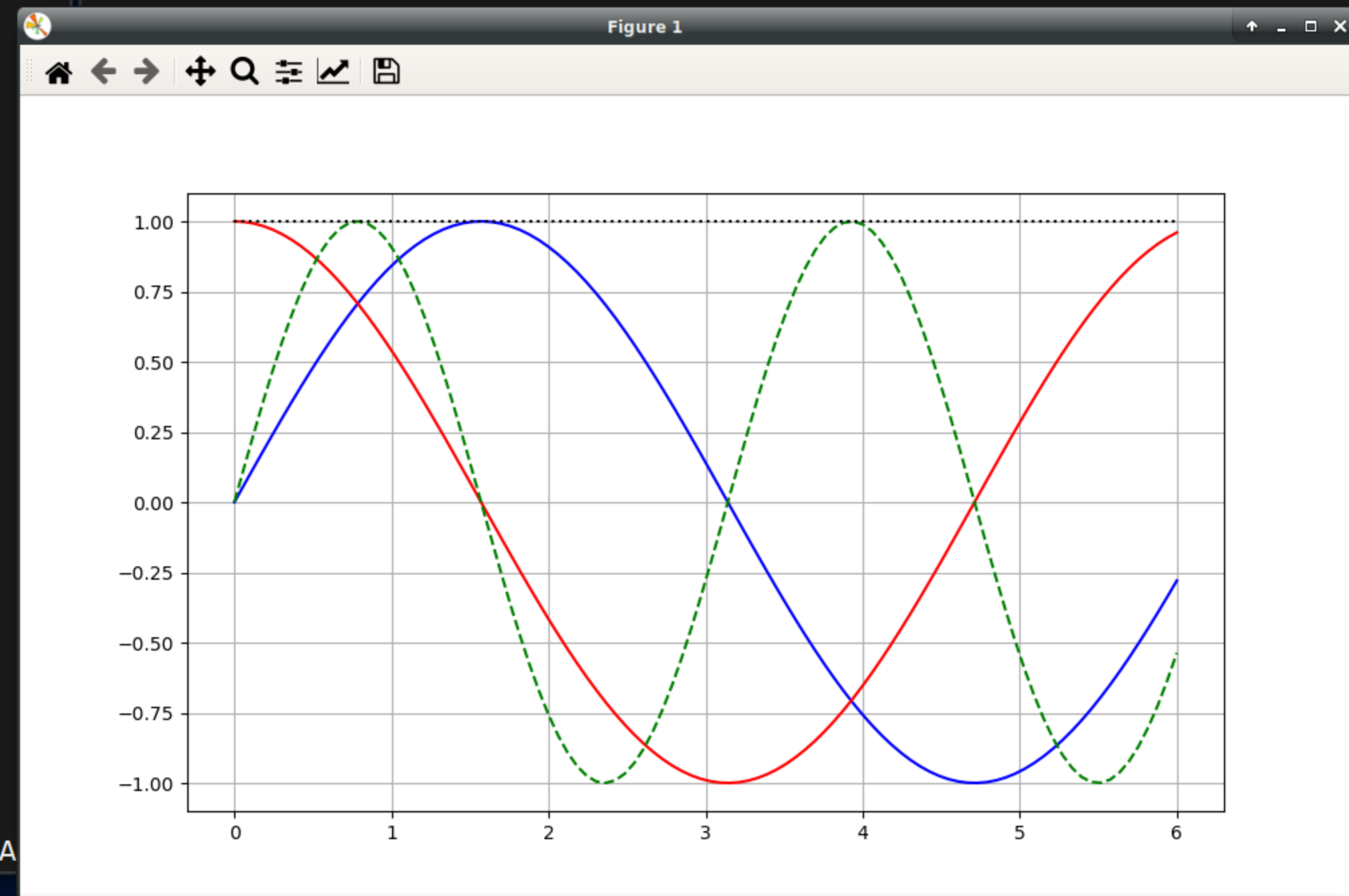
import numpy as np
import matplotlib.pyplot as plt

x = np.linspace(0, 6, 100)
y1 = np.sin(x)
y2 = np.cos(x)
y3 = 2 * y1 * y2
y4 = y1 * y1 + y2 * y2

plt.plot(x, y1, "b") # b -> blue
plt.plot(x, y2, "r") # r -> red
plt.plot(x, y3, "g--") # g -> green, style dashed
plt.plot(x, y4, "k:") # k -> black, style dotted
plt.grid()
plt.show()
```

"plot01.py" 18L, 410C 1,1 A

```
Terminal -
=>python plot00.py
=>python plot01.py
```



```
Terminal -
# multiple lines on the same figure
# (each line with its own style)

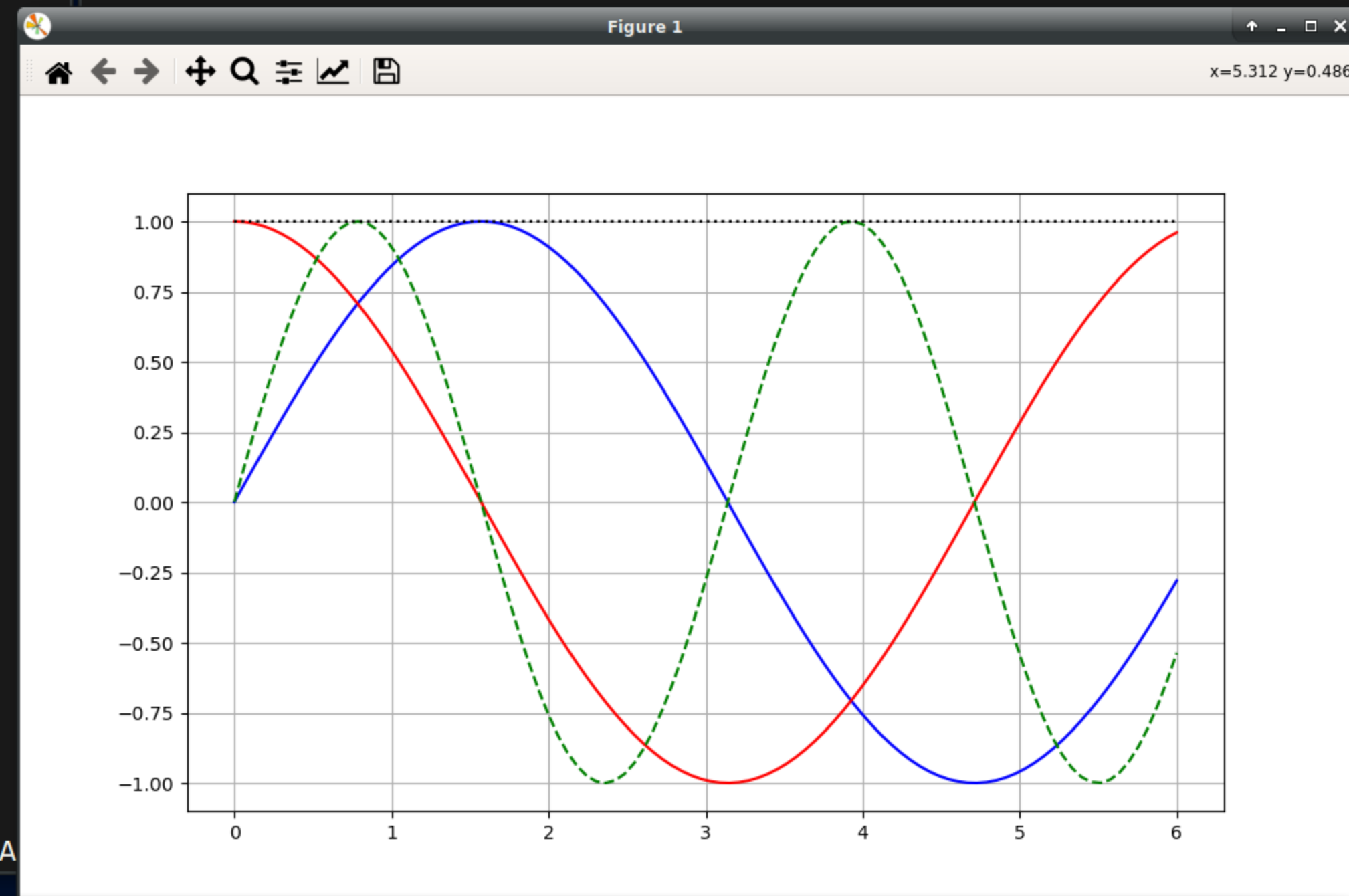
import numpy as np
import matplotlib.pyplot as plt

x = np.linspace(0, 6, 100)
y1 = np.sin(x)
y2 = np.cos(x)
y3 = 2 * y1 * y2
y4 = y1 * y1 + y2 * y2

plt.plot(x, y1, "b") # b -> blue
plt.plot(x, y2, "r") # r -> red
plt.plot(x, y3, "g--") # g -> green, style dashed
plt.plot(x, y4, "k:") # k -> black, style dotted
plt.grid()
plt.show()
```

"plot01.py" 18L, 410C 1,1 A

```
Terminal -
=>python plot00.py
=>python plot01.py
```



```
Terminal -
# multiple lines on the same figure
# (each line with its own style)

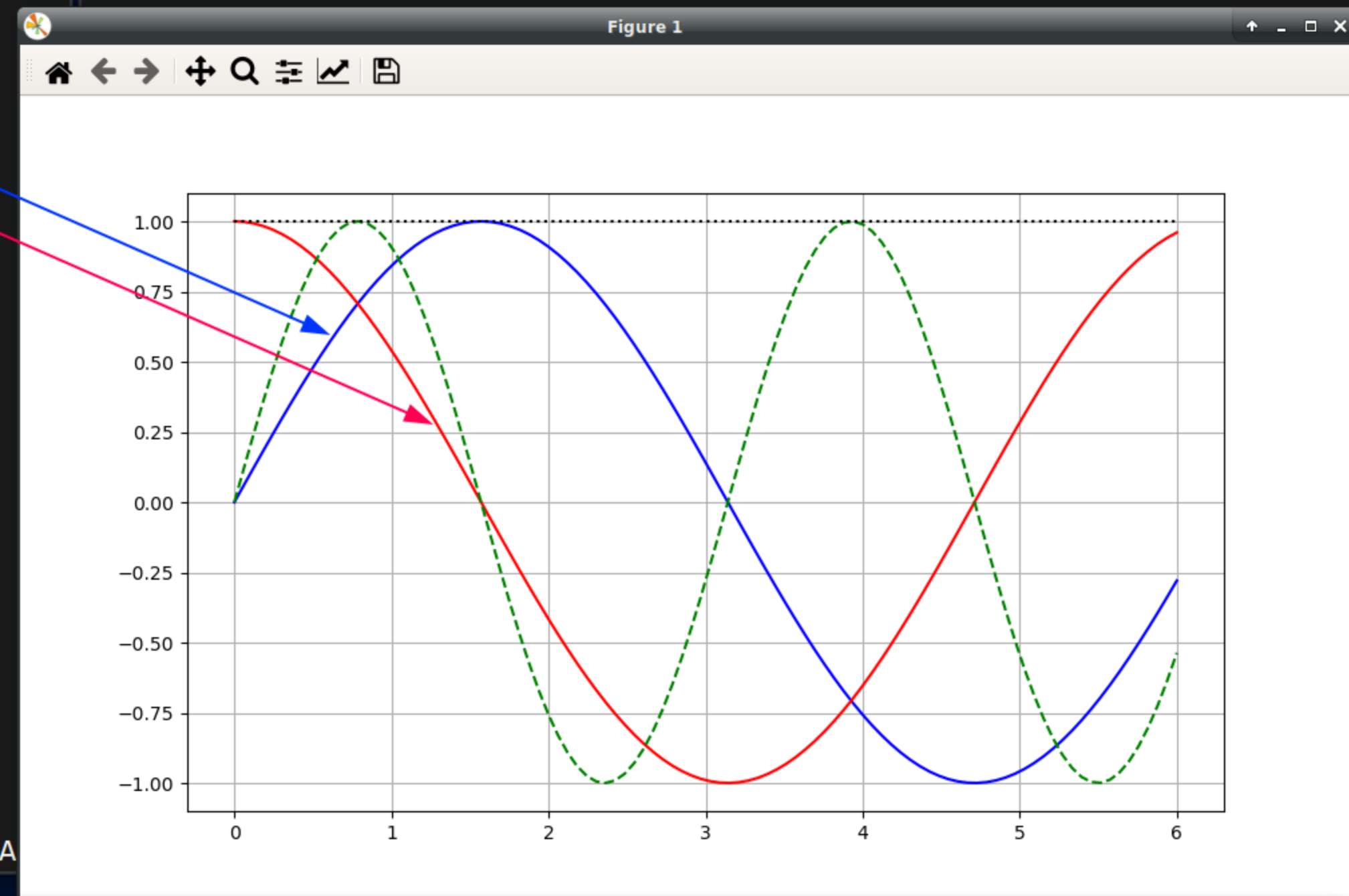
import numpy as np
import matplotlib.pyplot as plt

x = np.linspace(0, 6, 100)
y1 = np.sin(x)
y2 = np.cos(x)
y3 = 2 * y1 * y2
y4 = y1 * y1 + y2 * y2

plt.plot(x, y1, "b") # b -> blue
plt.plot(x, y2, "r") # r -> red
plt.plot(x, y3, "g--") # g -> green, style dashed
plt.plot(x, y4, "k:") # k -> black, style dotted
plt.grid()
plt.show()
```

"plot01.py" 18L, 410C 1,1 A

```
Terminal -
=>python plot00.py
=>python plot01.py
```



```
Terminal -
# multiple lines on the same figure
# (each line with its own style)

# similar to the previous one, but with descriptive
# arguments to plot

import numpy as np
import matplotlib.pyplot as plt

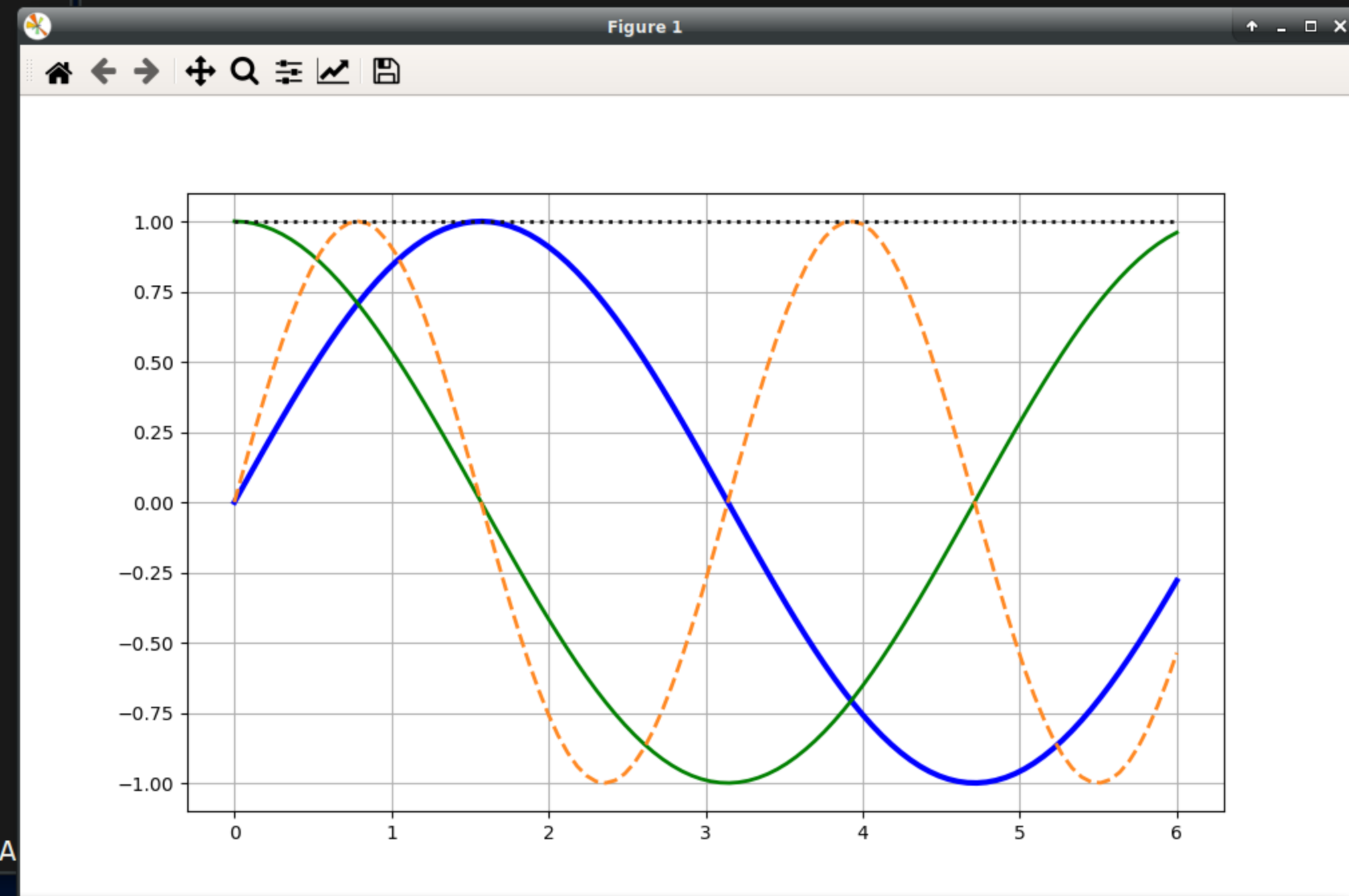
x = np.linspace(0, 6, 100)
y1 = np.sin(x)
y2 = np.cos(x)
y3 = 2 * y1 * y2
y4 = y1 * y1 + y2 * y2

# linewidth (also lw) => int, eg: 5
# linestyle (also ls) => str, eg: dashed
# color => str, eg: 'b', 'blue', '#00A'

plt.plot(x, y1, linewidth=3, ls="solid", color="b")
plt.plot(x, y2, lw=2, linestyle="solid", color="green")
plt.plot(x, y3, lw=2, ls="dashed", color="#f82")
plt.plot(x, y4, lw=2, ls="dotted", color="#111")
plt.grid()
plt.show()
```

"plot02.py" 25L, 639C 1,1 A

```
Terminal -
=>python plot02.py
```



```
Terminal -
# multiple lines on the same figure
# (each line with its own style)

# similar to the previous one, but with descriptive
# arguments to plot
```

```
import numpy as np
import matplotlib.pyplot as plt
```

```
x = np.linspace(0, 6, 100)
y1 = np.sin(x)
y2 = np.cos(x)
y3 = 2 * y1 * y2
y4 = y1 * y1 + y2 * y2
```

```
# linewidth (also lw) => int, eg: 5
# linestyle (also ls) => str, eg: dashed
# color => str, eg: 'b', 'blue', '#00A'
```

```
plt.plot(x, y1, linewidth=3, ls="solid", color="b")
plt.plot(x, y2, lw=2, linestyle="solid", color="green")
plt.plot(x, y3, lw=2, ls="dashed", color="#f82")
plt.plot(x, y4, lw=2, ls="dotted", color="#111")
plt.grid()
plt.show()
```

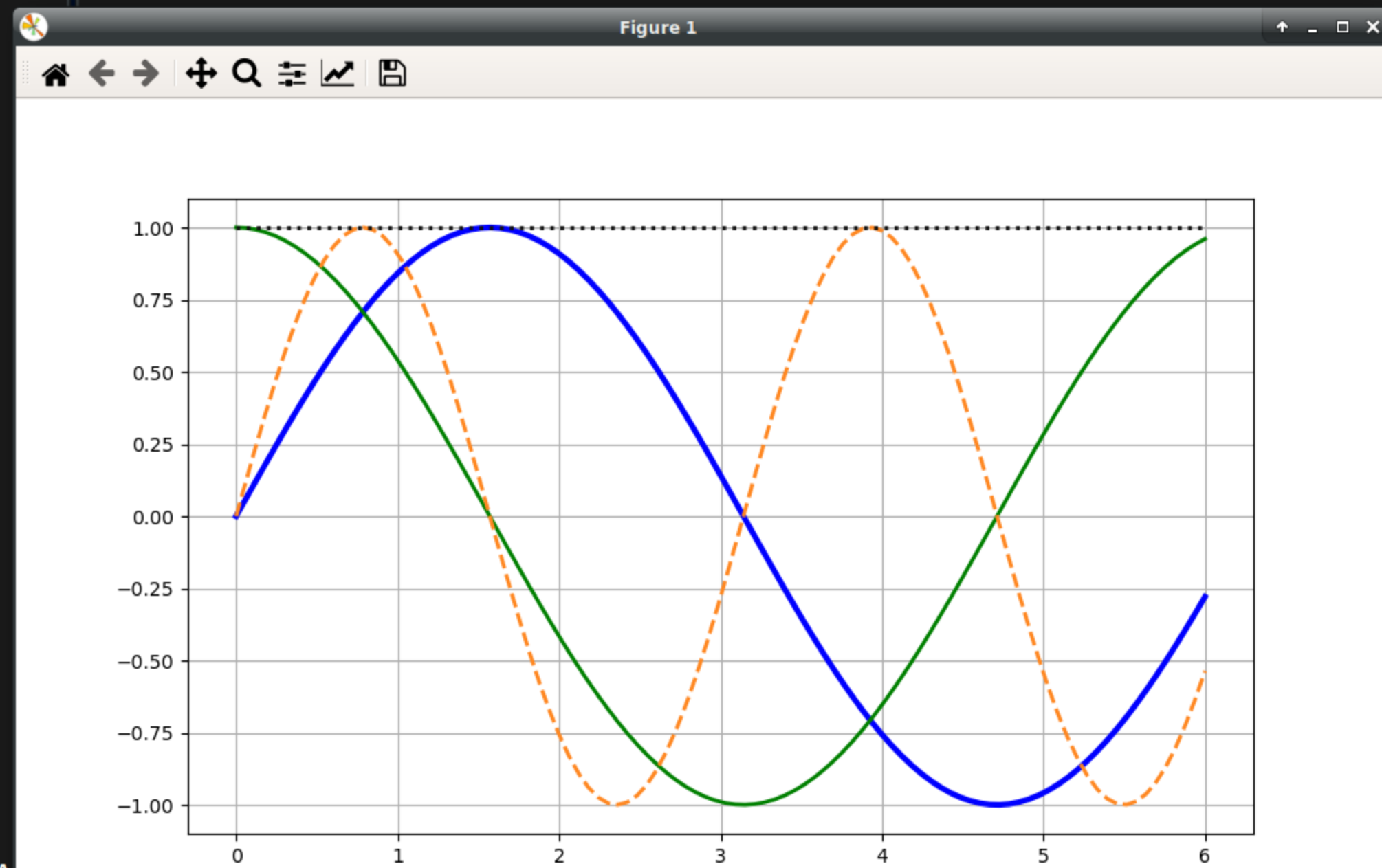
"plot02.py" 25L, 639C

1,1

A

```
Terminal -
=>python plot02.py
=>python plot02.py

```





```
Terminal -
# multiple lines on the same figure
# (each line with its own style)

# similar to the previous one, but with descriptive
# arguments to plot

import numpy as np
import matplotlib.pyplot as plt

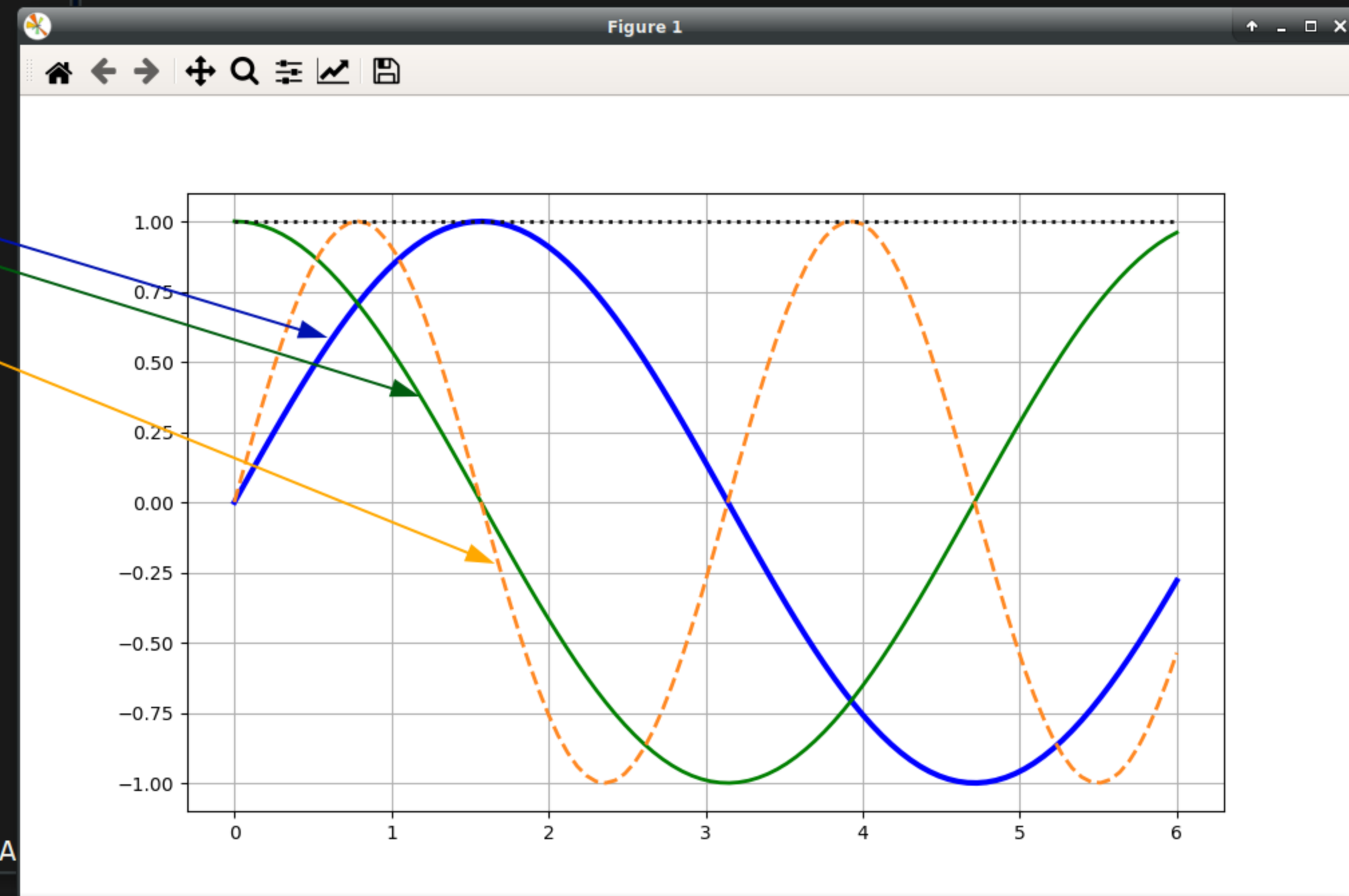
x = np.linspace(0, 6, 100)
y1 = np.sin(x)
y2 = np.cos(x)
y3 = 2 * y1 * y2
y4 = y1 * y1 + y2 * y2

# linewidth (also lw) => int, eg: 5
# linestyle (also ls) => str, eg: dashed
# color => str, eg: 'b', 'blue', '#00A'

plt.plot(x, y1, linewidth=3, ls="solid", color="b")
plt.plot(x, y2, lw=2, linestyle="solid", color="green")
plt.plot(x, y3, lw=2, ls="dashed", color="#f82")
plt.plot(x, y4, lw=2, ls="dotted", color="#111")
plt.grid()
plt.show()
```

"plot02.py" 25L, 639C 1,1 A

```
Terminal -
=>python plot02.py
=>python plot02.py
```





```
Terminal -  
# adding axis labels, plot title, and legends (curve names)
```

```
import numpy as np  
import matplotlib.pyplot as plt
```

```
x = np.linspace(0, 6, 100)  
y1 = np.sin(x)  
y2 = np.cos(x)  
y3 = 2 * y1 * y2  
y4 = y1 * y1 + y2 * y2
```

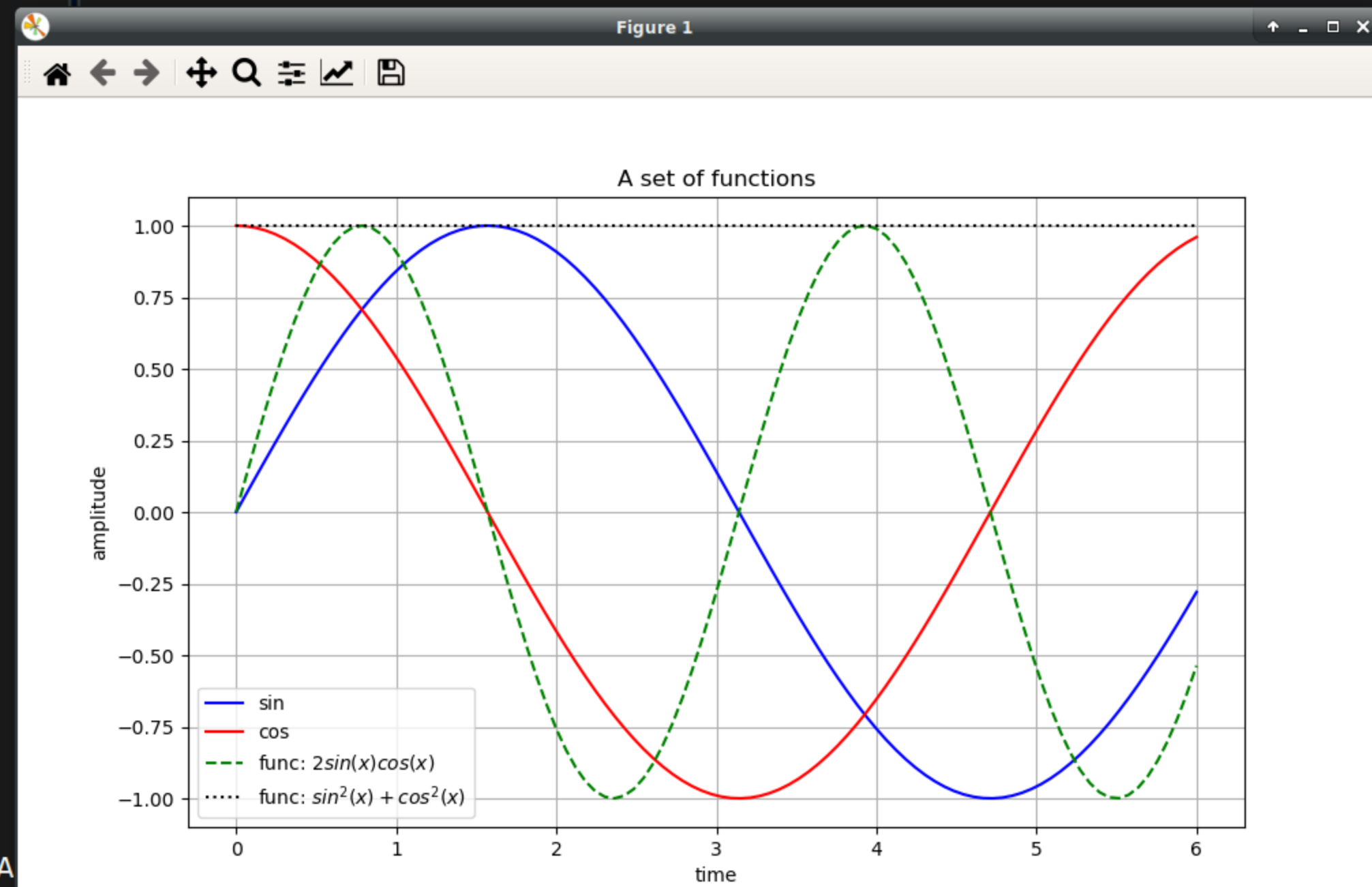
```
plt.plot(x, y1, "b", label="sin")  
plt.plot(x, y2, "r", label="cos")  
plt.plot(x, y3, "g--", label="func:  $2\sin(x)\cos(x)$ ")  
plt.plot(x, y4, "k:", label="func:  $\sin^2(x) + \cos^2(x)$ ")  
plt.grid()  
plt.legend(loc="lower left")  
plt.xlabel("time")  
plt.ylabel("amplitude")  
plt.title("A set of functions")  
plt.show()
```

```
"plot03.py" 21L, 516C
```

```
1,1
```

```
A
```

```
Terminal -  
=>python plot03.py
```



```
Terminal -  
# adding axis labels, plot title, and legends (curve names)
```

```
import numpy as np  
import matplotlib.pyplot as plt
```

```
x = np.linspace(0, 6, 100)  
y1 = np.sin(x)  
y2 = np.cos(x)  
y3 = 2 * y1 * y2  
y4 = y1 * y1 + y2 * y2
```

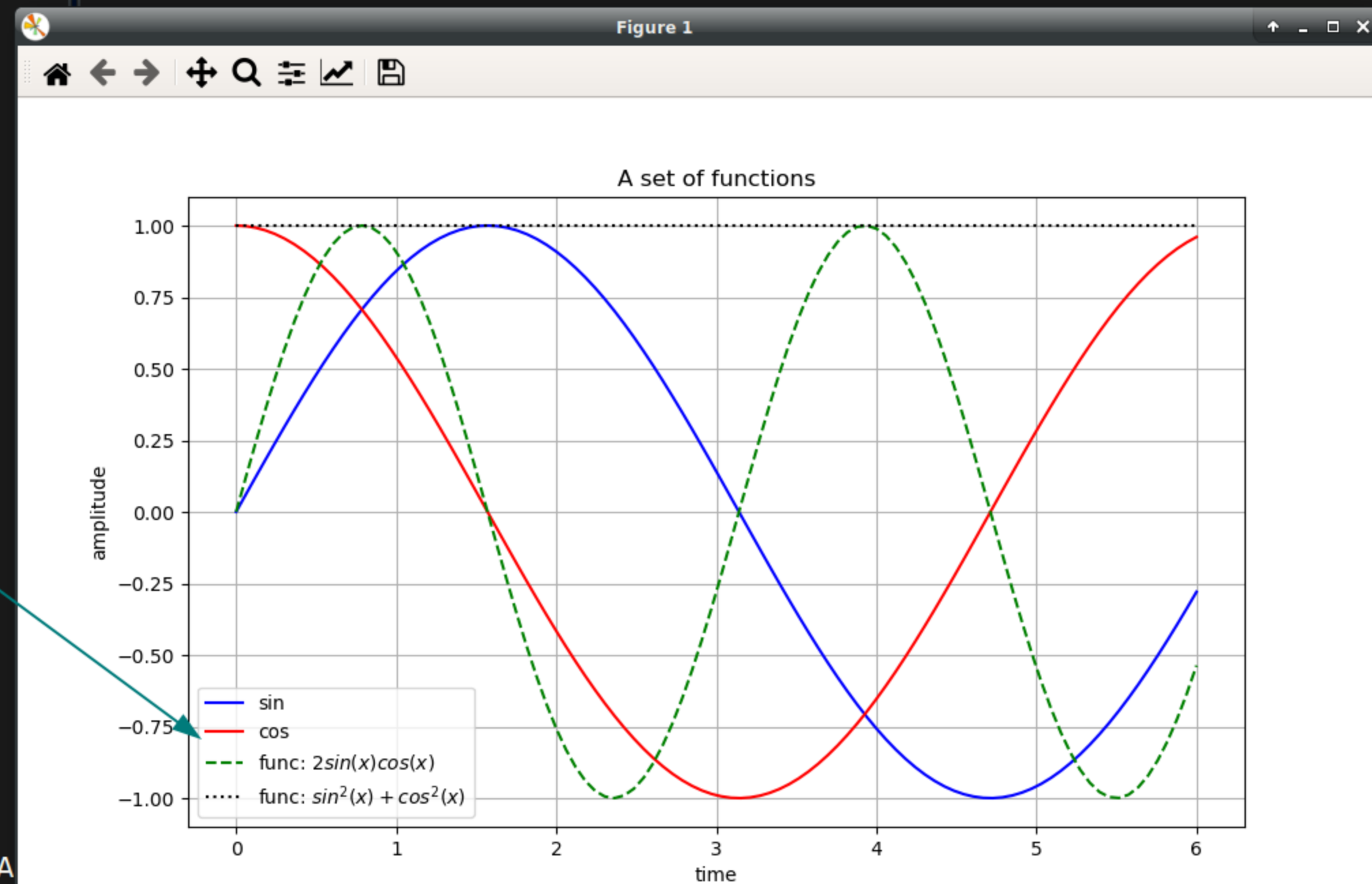
```
plt.plot(x, y1, "b", label="sin")  
plt.plot(x, y2, "r", label="cos")  
plt.plot(x, y3, "g--", label="func:  $2\sin(x)\cos(x)$ ")  
plt.plot(x, y4, "k:", label="func:  $\sin^2(x) + \cos^2(x)$ ")  
plt.grid()  
plt.legend(loc="lower left")  
plt.xlabel("time")  
plt.ylabel("amplitude")  
plt.title("A set of functions")  
plt.show()
```

"plot03.py" 21L, 516C

1,1

A

```
Terminal -  
=>python plot03.py
```



```
Terminal -  
# adding axis labels, plot title, and legends (curve names)
```

```
import numpy as np  
import matplotlib.pyplot as plt
```

```
x = np.linspace(0, 6, 100)  
y1 = np.sin(x)  
y2 = np.cos(x)  
y3 = 2 * y1 * y2  
y4 = y1 * y1 + y2 * y2
```

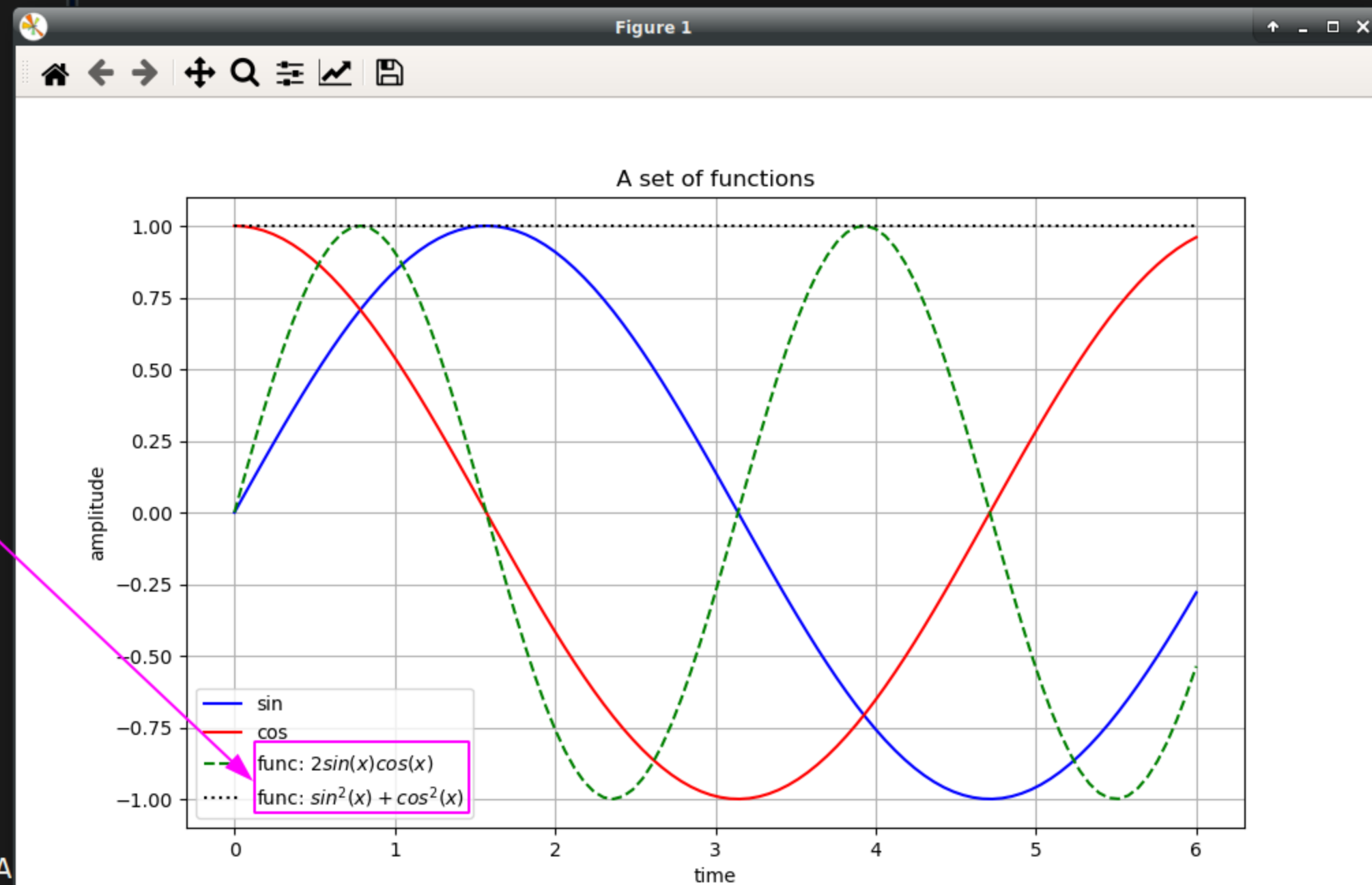
```
plt.plot(x, y1, "b", label="sin")  
plt.plot(x, y2, "r", label="cos")  
plt.plot(x, y3, "g--", label="func:  $2\sin(x)\cos(x)$ ")  
plt.plot(x, y4, "k:", label="func:  $\sin^2(x) + \cos^2(x)$ ")  
plt.grid()  
plt.legend(loc="lower left")  
plt.xlabel("time")  
plt.ylabel("amplitude")  
plt.title("A set of functions")  
plt.show()
```

"plot03.py" 21L, 516C

1,1

A

```
Terminal -  
=>python plot03.py
```



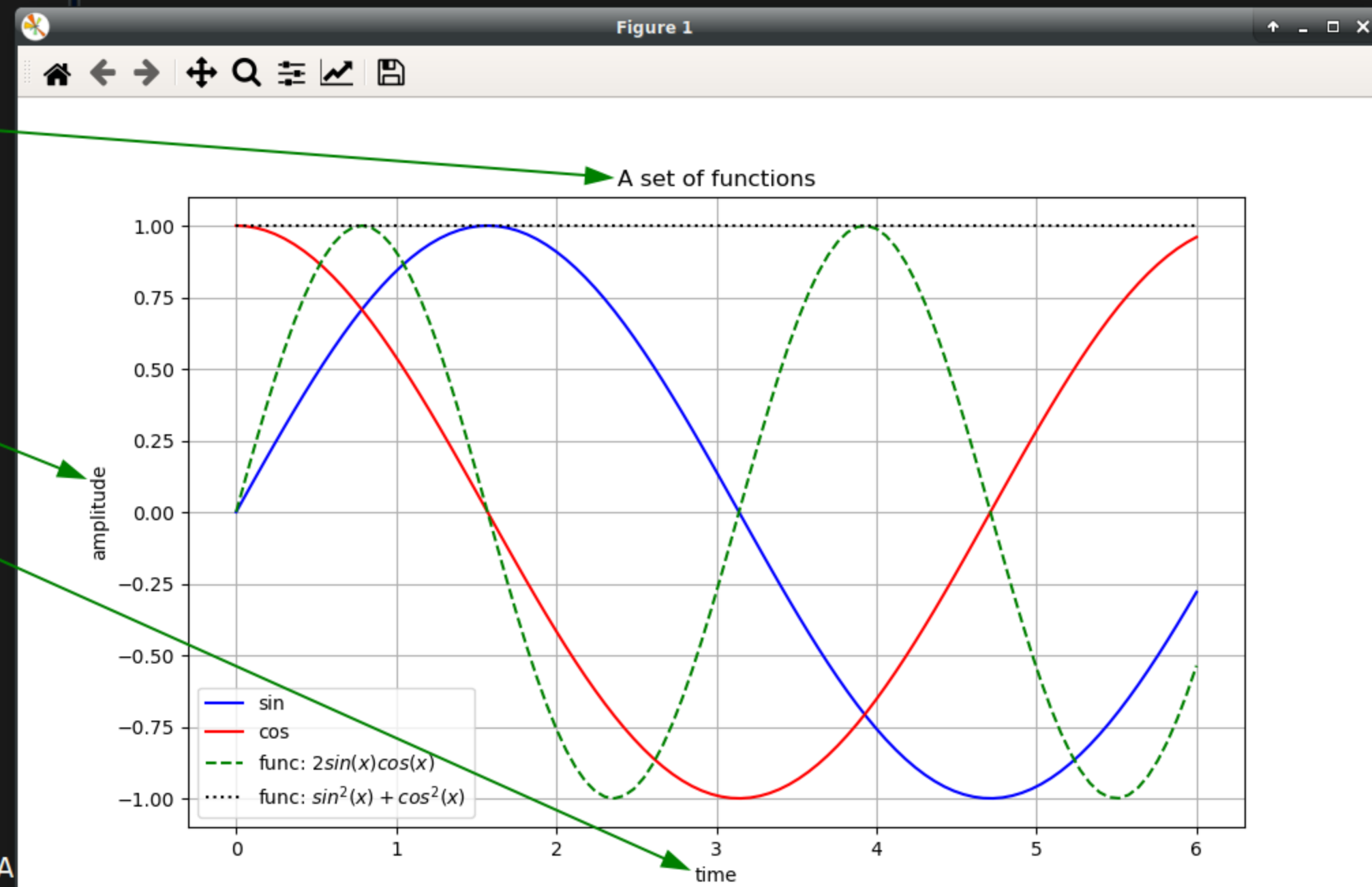
```
Terminal -  
# adding axis labels, plot title, and legends (curve names)
```

```
import numpy as np  
import matplotlib.pyplot as plt
```

```
x = np.linspace(0, 6, 100)  
y1 = np.sin(x)  
y2 = np.cos(x)  
y3 = 2 * y1 * y2  
y4 = y1 * y1 + y2 * y2
```

```
plt.plot(x, y1, "b", label="sin")  
plt.plot(x, y2, "r", label="cos")  
plt.plot(x, y3, "g--", label="func:  $2\sin(x)\cos(x)$ ")  
plt.plot(x, y4, "k:", label="func:  $\sin^2(x) + \cos^2(x)$ ")  
plt.grid()  
plt.legend(loc="lower left")  
plt.title("A set of functions")  
plt.ylabel("amplitude")  
plt.xlabel("time")  
plt.show()
```

```
Terminal -  
=>python plot03.py
```



```
Terminal -
# setting figure size
# tight_layout
# save as png
```

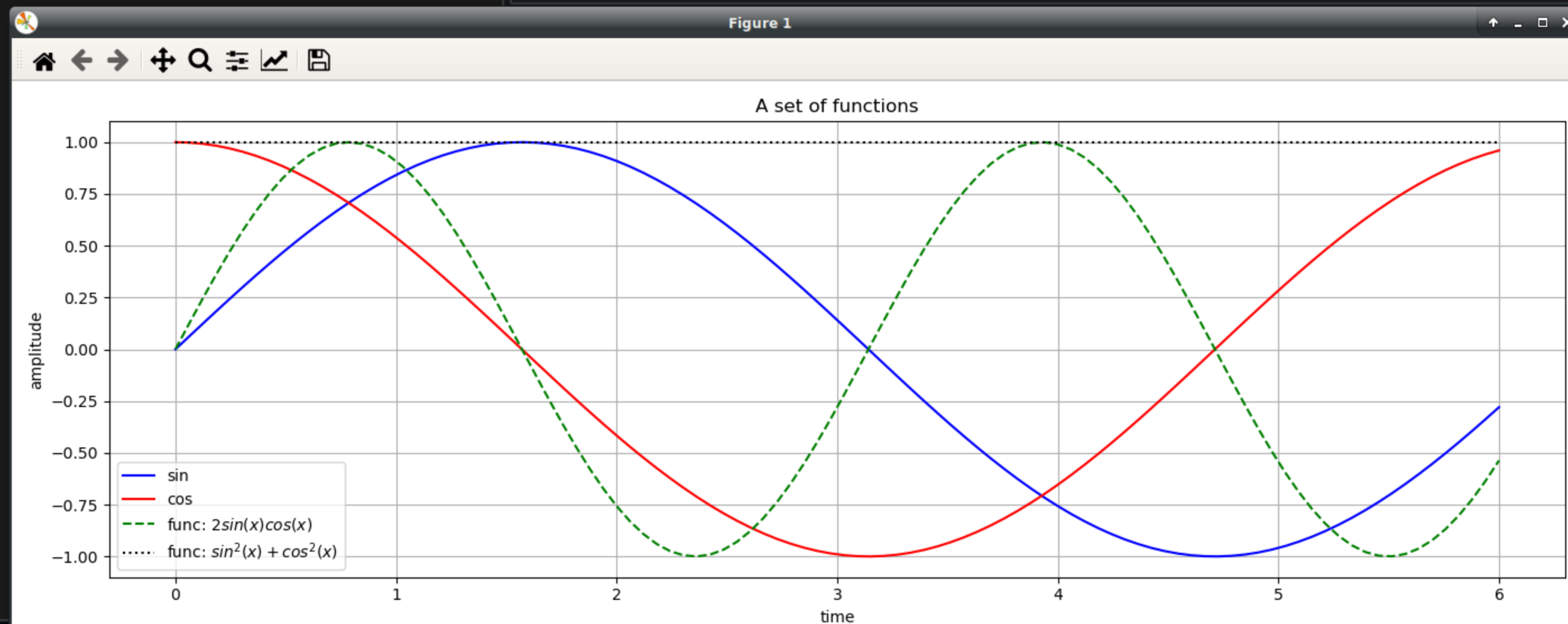
```
import numpy as np
import matplotlib.pyplot as plt
```

```
x = np.linspace(0, 6, 100)
y1 = np.sin(x)
y2 = np.cos(x)
y3 = 2 * y1 * y2
y4 = y1 * y1 + y2 * y2
```

```
plt.figure(figsize=(14, 5))
plt.plot(x, y1, "b", label="sin")
plt.plot(x, y2, "r", label="cos")
plt.plot(x, y3, "g--", label="func:  $2\sin(x)\cos(x)$ ")
plt.plot(x, y4, "k:", label="func:  $\sin^2(x) + \cos^2(x)$ ")
plt.grid()
plt.legend(loc="lower left")
plt.xlabel("time")
plt.ylabel("amplitude")
plt.title("A set of functions")
plt.tight_layout()
plt.savefig("functions.png")
plt.show()
```

```
"plot04.py" 26L, 583C
```

```
Terminal -
=>python plot04.py
```





```
# setting figure size
# tight_layout
# save as png
```

```
import numpy as np
import matplotlib.pyplot as plt
```

```
x = np.linspace(0, 6, 100)
```

```
y1 = np.sin(x)
```

```
y2 = np.cos(x)
```

```
y3 = 2 * y1 * y2
```

```
y4 = y1 * y1 + y2 * y2
```

```
plt.figure(figsize=(14, 5))
```

```
plt.plot(x, y1, "b", label="sin")
```

```
plt.plot(x, y2, "r", label="cos")
```

```
plt.plot(x, y3, "g--", label="func:  $2\sin(x)\cos(x)$ ")
```

```
plt.plot(x, y4, "k:", label="func:  $\sin^2(x) + \cos^2(x)$ ")
```

```
plt.grid()
```

```
plt.legend(loc="lower left")
```

```
plt.xlabel("time")
```

```
plt.ylabel("amplitude")
```

```
plt.title("A set of functions")
```

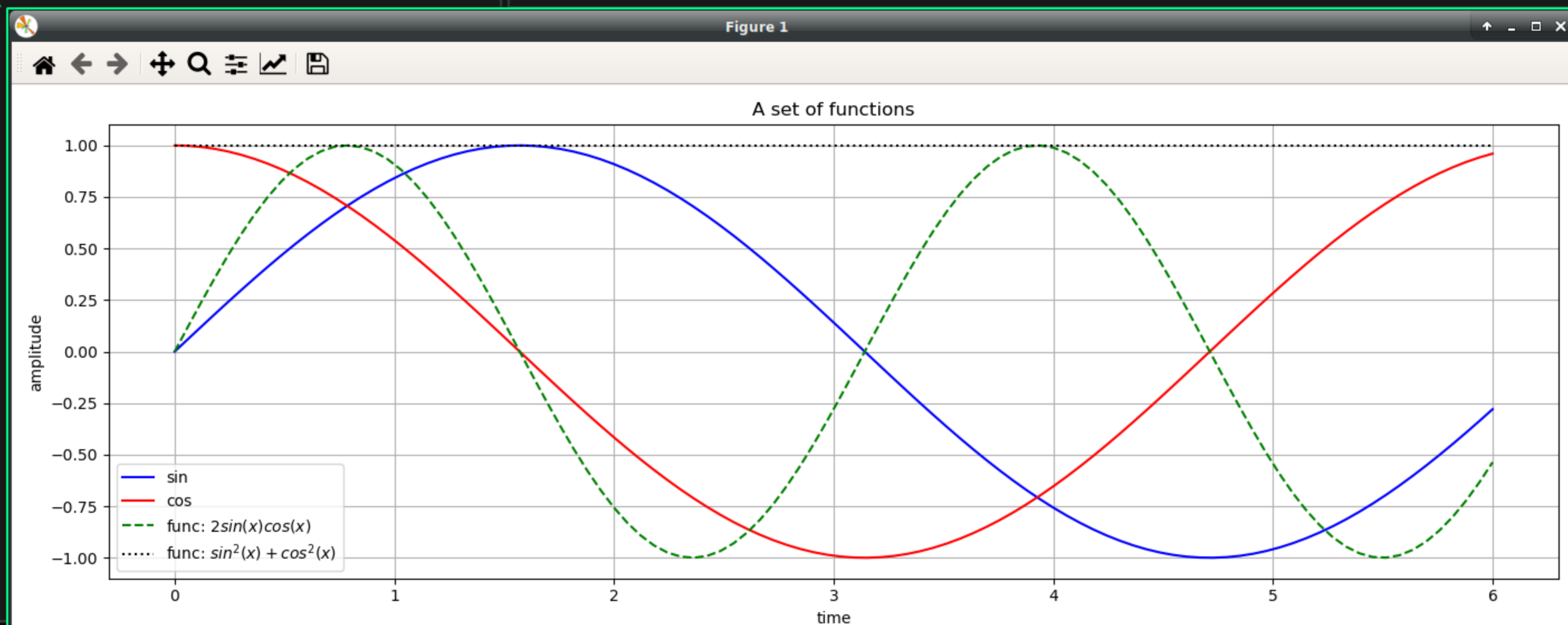
```
plt.tight_layout()
```

```
plt.savefig("functions.png")
```

```
plt.show()
```

"plot04.py" 26L, 583C

```
=>python plot04.py
```





```
# setting figure size  
# tight_layout  
# save as png
```

```
import numpy as np  
import matplotlib.pyplot as plt
```

```
x = np.linspace(0, 6, 100)  
y1 = np.sin(x)  
y2 = np.cos(x)  
y3 = 2 * y1 * y2  
y4 = y1 * y1 + y2 * y2
```

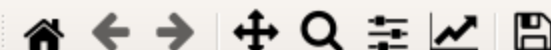
```
plt.figure(figsize=(14, 5))  
plt.plot(x, y1, "b", label="sin")  
plt.plot(x, y2, "r", label="cos")  
plt.plot(x, y3, "g--", label="func:  $2\sin(x)\cos(x)$ ")  
plt.plot(x, y4, "k:", label="func:  $\sin^2(x) + \cos^2(x)$ ")  
plt.grid()  
plt.legend(loc="lower left")  
plt.xlabel("time")  
plt.ylabel("amplitude")  
plt.title("A set of functions")  
#plt.tight_layout()  
plt.savefig("functions.png")  
plt.show()
```

"plot04.py" 26L, 584C written

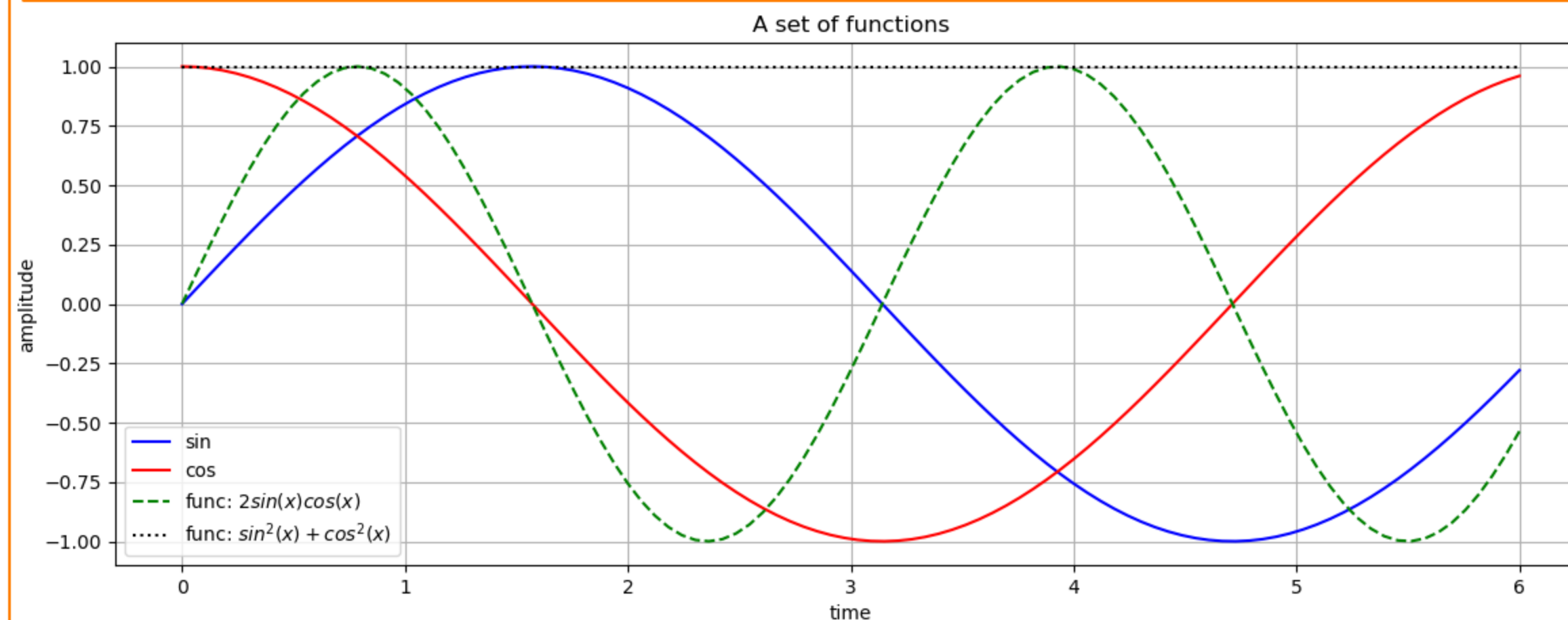
```
=>python plot04.py
```



Figure 1



x=0.004 y=0.506



```
# setting figure size
# tight_layout
# save as png
```

```
import numpy as np
import matplotlib.pyplot as plt
```

```
x = np.linspace(0, 6, 100)
```

```
y1 = np.sin(x)
y2 = np.cos(x)
y3 = 2 * y1 * y2
y4 = y1 * y1 + y2 * y2
```

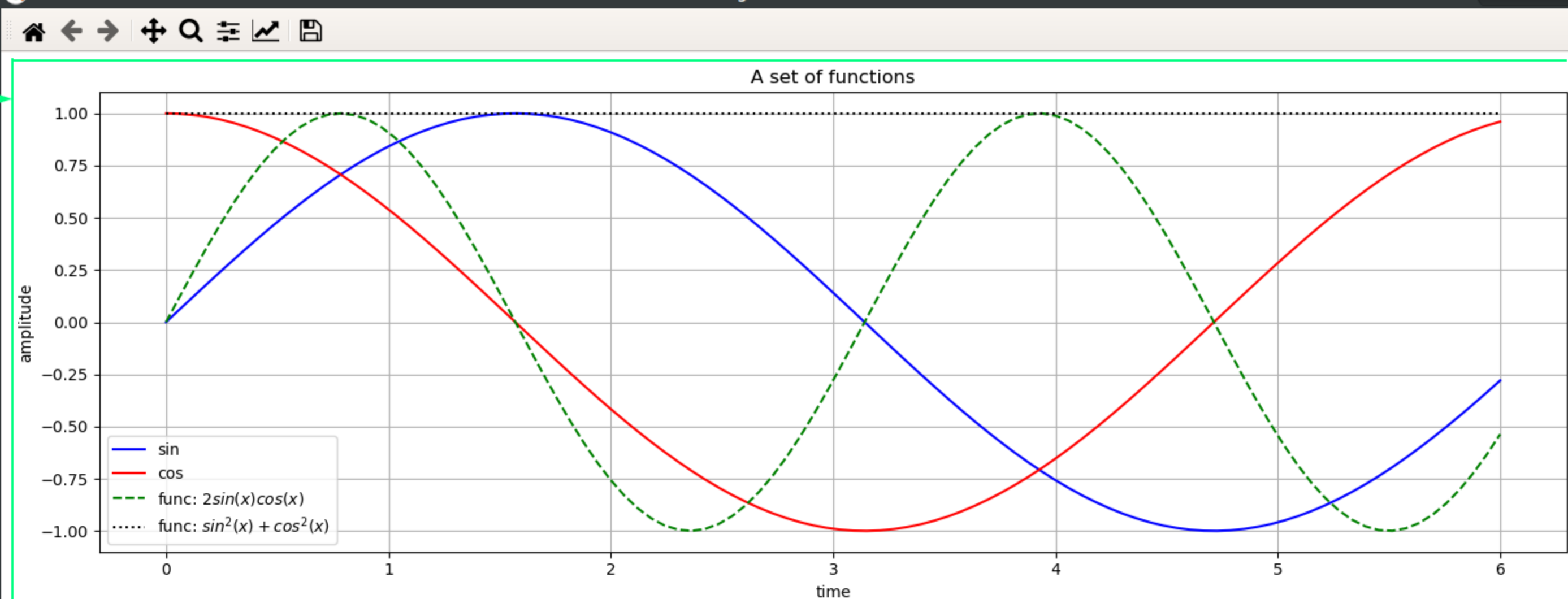
```
plt.figure(figsize=(14, 5))
plt.plot(x, y1, "b", label="sin")
plt.plot(x, y2, "r", label="cos")
plt.plot(x, y3, "g--", label="func:  $2\sin(x)\cos(x)$ ")
plt.plot(x, y4, "k:", label="func:  $\sin^2(x) + \cos^2(x)$ ")
plt.grid()
plt.legend(loc="lower left")
plt.xlabel("time")
plt.ylabel("amplitude")
plt.title("A set of functions")
plt.tight_layout()
plt.savefig("functions.png")
plt.show()
```

"plot04.py" 26L, 583C written

```
=>python plot04.py
```



Figure 1



```
Terminal -
# setting figure size
# tight_layout
# save as png

import numpy as np
import matplotlib.pyplot as plt

x = np.linspace(0, 6, 100)
y1 = np.sin(x)
y2 = np.cos(x)
y3 = 2 * y1 * y2
y4 = y1 * y1 + y2 * y2

plt.figure(figsize=(14, 5))
plt.plot(x, y1, "b", label="sin")
plt.plot(x, y2, "r", label="cos")
plt.plot(x, y3, "g--", label="func:  $2\sin(x)\cos(x)$ ")
plt.plot(x, y4, "k:", label="func:  $\sin^2(x) + \cos^2(x)$ ")
plt.grid()
plt.legend(loc="lower left")
plt.xlabel("time")
plt.ylabel("amplitude")
plt.title("A set of functions")
plt.tight_layout()
plt.savefig("functions.png")
plt.show()
```

"plot04.py" 26L, 583C written

24,1 All

```
Terminal -
=>python plot04.py

=>ls
functions.png plot00.py plot01.py plot02.py plot03.py plot04.py

=>
```