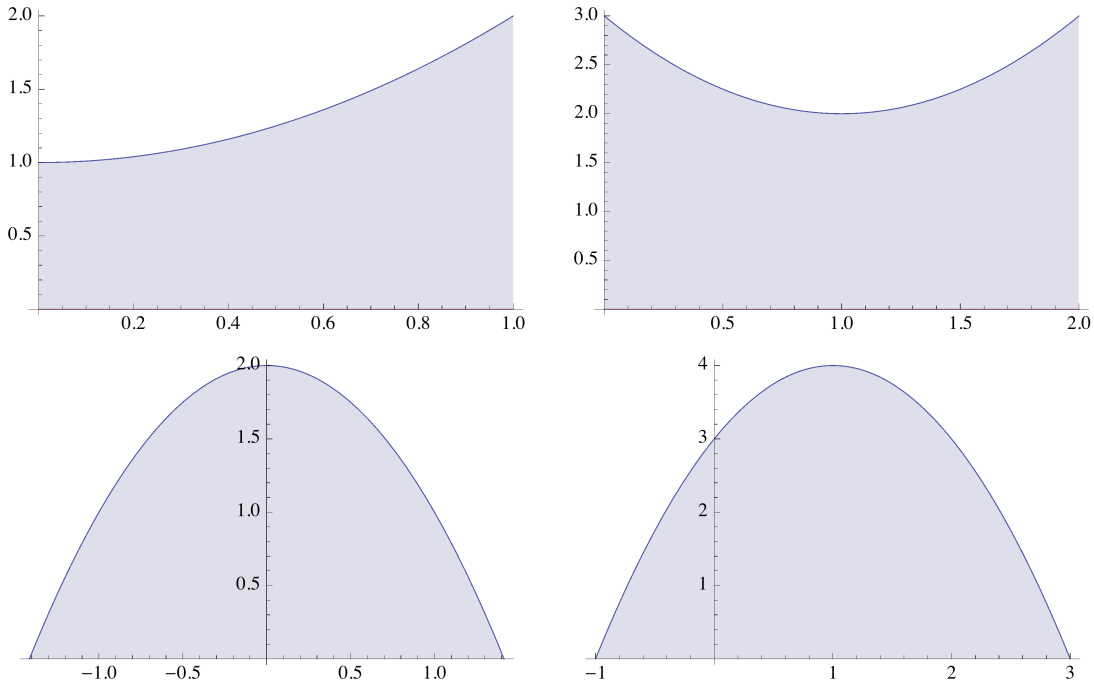
## 1（教科書 問題 7.3）

```
GraphicsGrid[{{Plot[{x^2 + 1, 0}, {x, 0, 1}, Filling → {1 → {2}}],
    Plot[{x^2 - 2 x + 3, 0}, {x, 0, 2}, Filling → {1 → {2}}]},
  {Plot[-x^2 + 2, {x, -Sqrt[2], Sqrt[2]}, Filling → Axis],
    Plot[-x^2 + 2 x + 3, {x, -1, 3}, Filling → Axis]}}]
```



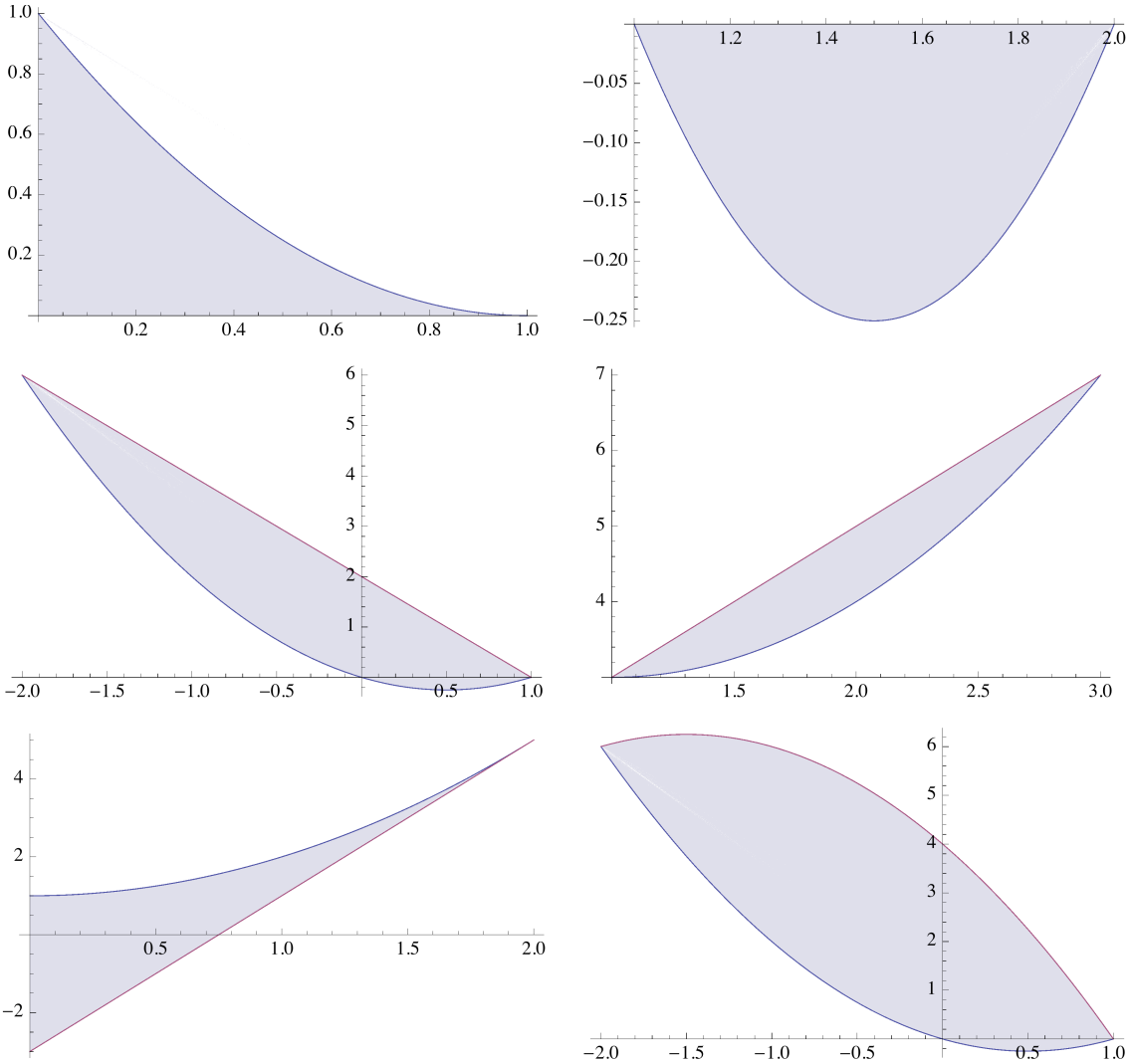

In[8]:=
$$\left\{\left\{\text{Integrate}\left[x^2+1,\{x,0,1\}\right],\ \text{Integrate}\left[x^2-2x+3,\{x,0,2\}\right]\right\},\right.$$
$$\left.\left\{\text{Integrate}\left[-x^2+2,\left\{x,-\sqrt{2},\sqrt{2}\right\}\right],\ \text{Integrate}\left[-x^2+2x+3,\{x,-1,3\}\right]\right\}\right\}$$

Out[8]=
$$\left\{\left\{\frac{4}{3},\frac{14}{3}\right\},\left\{\frac{8\sqrt{2}}{3},\frac{32}{3}\right\}\right\}$$

## 2（教科書 問題 7.4）

In[6]:=
```
GraphicsGrid[
 {{Plot[x^2 - 2 x + 1, {x, 0, 1}, Filling → Axis], Plot[x^2 - 3 x + 2, {x, 1, 2}, Filling → Axis]},
  {Plot[{x^2 - x, -2 x + 2}, {x, -2, 1}, Filling → {1 → {2}}],
   Plot[{x^2 - 2 x + 4, 2 x + 1}, {x, 1, 3}, Filling → {1 → {2}}]},
  {Plot[{x^2 + 1, 4 x - 3}, {x, 0, 2}, Filling → {1 → {2}}],
   Plot[{x^2 - x, -x^2 - 3 x + 4}, {x, -2, 1}, Filling → {1 → {2}}]}}]
```

Out[6]=




In[7]:=
```
{{Integrate[x^2 - 2 x + 1, {x, 0, 1}], -Integrate[x^2 - 3 x + 2, {x, 1, 2}]},
 {Integrate[-2 x + 2 - (x^2 - x), {x, -2, 1}], Integrate[2 x + 1 - (x^2 - 2 x + 4), {x, 1, 3}]},
 {Integrate[x^2 + 1 - (4 x - 3), {x, 0, 2}], Integrate[-x^2 - 3 x + 4 - (x^2 - x), {x, -2, 1}]}}
```

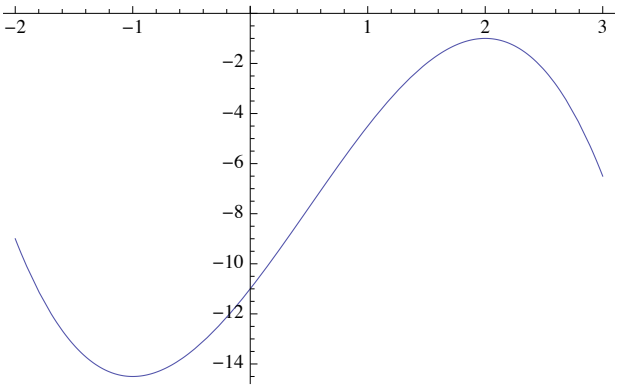
Out[7]=
$$\left\{\left\{\frac{1}{3}, \frac{1}{6}\right\}, \left\{\frac{9}{2}, \frac{4}{3}\right\}, \left\{\frac{8}{3}, 9\right\}\right\}$$

## 3

In[9]:=
```
f[x_] := -x^3 + 3/2 x^2 + 6 x - 11
```

In[10]:=
```
Plot[f[x], {x, -2, 3}]
```

Out[10]=




In[11]:=
```
{f[-1], f[2], f[1], f[3]}
```

Out[11]=
$$\left\{-\frac{29}{2}, -1, -\frac{9}{2}, -\frac{13}{2}\right\}$$

In[12]:=
```
{MaxValue[{f[x], 1 ≤ x ≤ 3}, x], MinValue[{f[x], 1 ≤ x ≤ 3}, x]}
```

Out[12]=
$$\left\{-1, -\frac{13}{2}\right\}$$