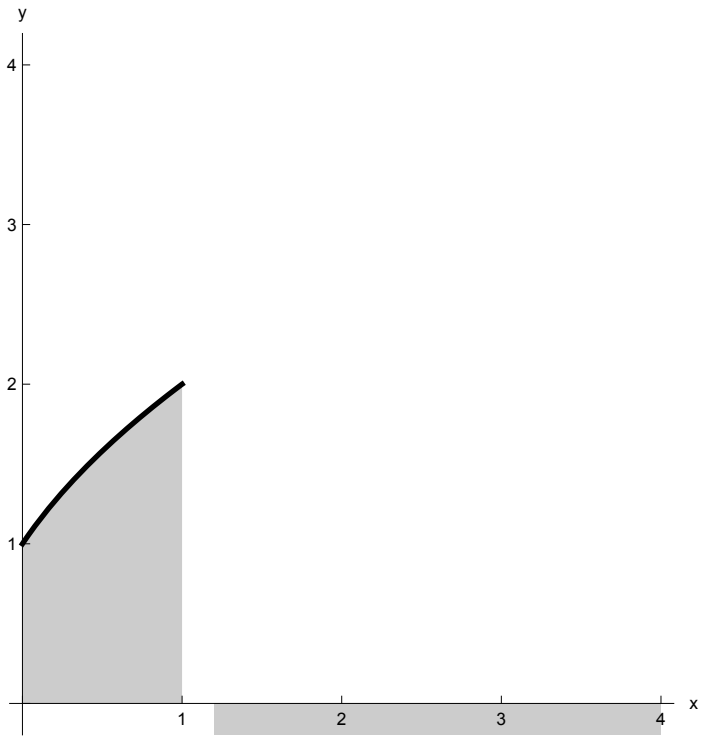
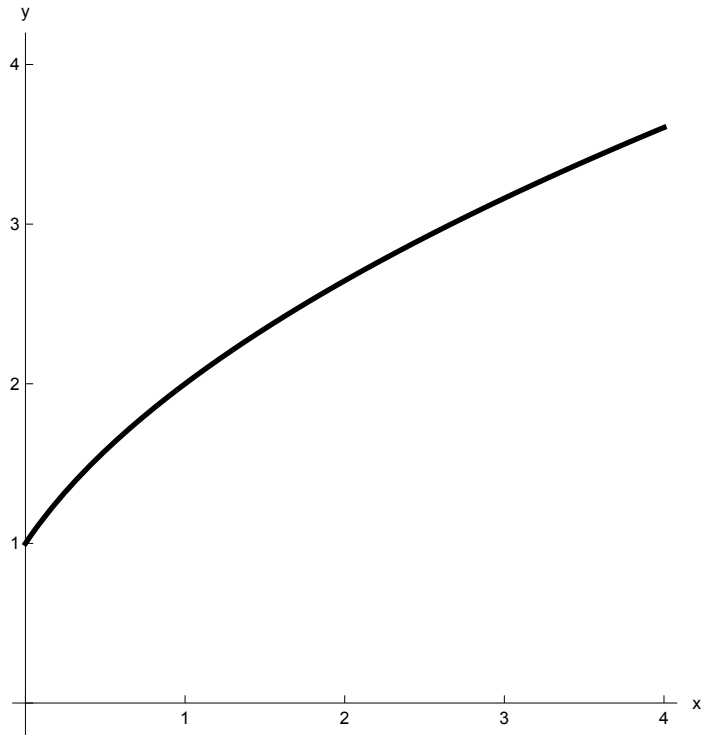
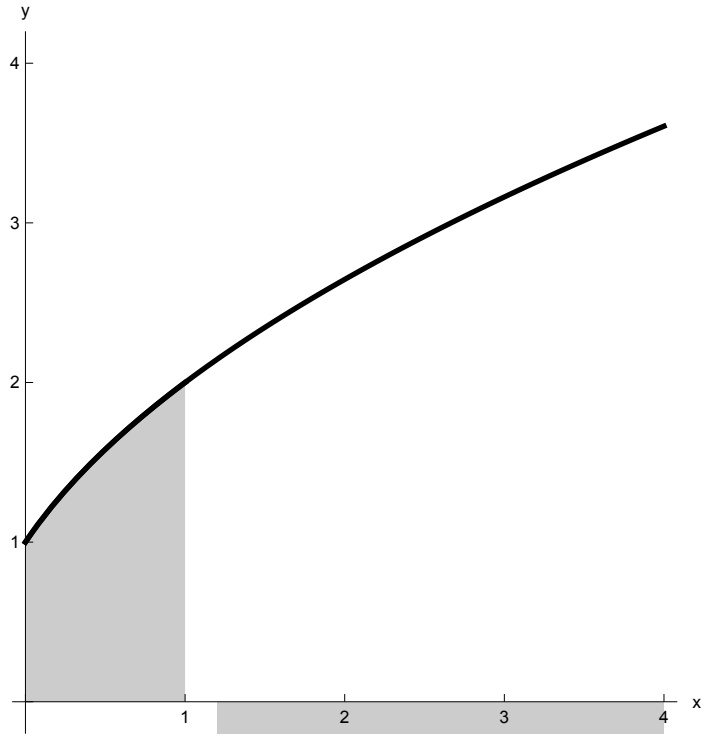
```
Clear[f, g, x];
f[x_] := √(1 + 3 x) /; 0 ≤ x < 1;
f[x_] := -20 /; 1.2 ≤ x < 4.8;
g[x_] := √(1 + 3 x) /; 0 ≤ x < 4;
xTicks = Table[n , {n, 0, 10}]
yTicks = Table[n, {n, 0, 10}]
One = Plot[f[x], {x, 0, 4}, PlotRange → {-0.2, 4.2}, Ticks → {xTicks, yTicks},
  PlotStyle -> {{Black, Thickness[0.008]}},
   AxesLabel -> {"x", "y"}, AspectRatio → Automatic, Filling → Axis]
Onne = Plot[g[x], {x, 0, 4}, PlotRange → {-0.2, 4.2}, Ticks → {xTicks, yTicks},
  PlotStyle -> {{Black, Thickness[0.008]}},
   AxesLabel -> {"x", "y"}, AspectRatio → Automatic]
Show[One, Onne]
```

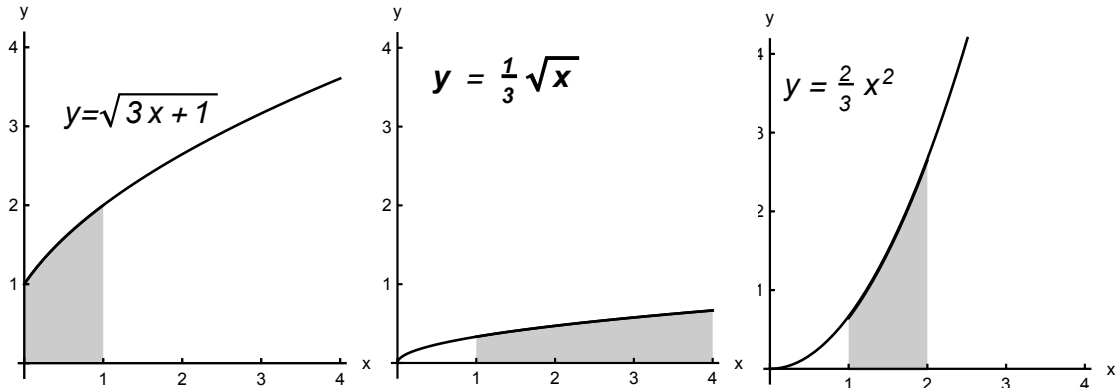
```
{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10}
```

```
{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10}
```




y
4
3
2
1
1
2
3
4
x

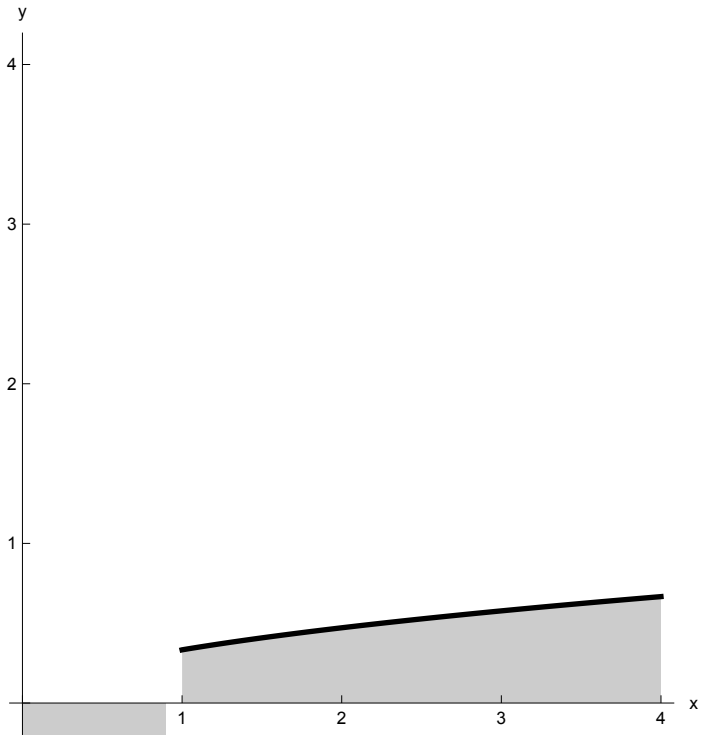

y
4
3
2
1
1
2
3
4
x

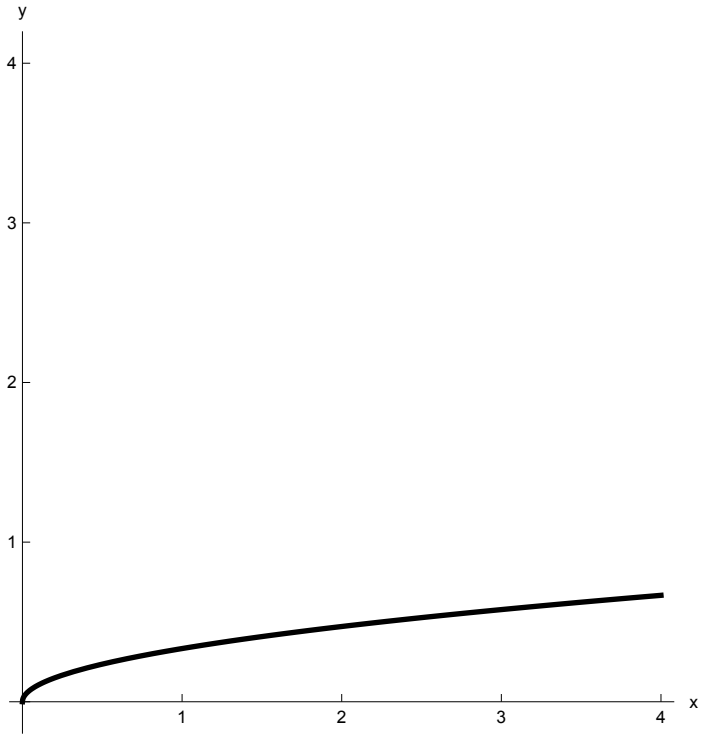


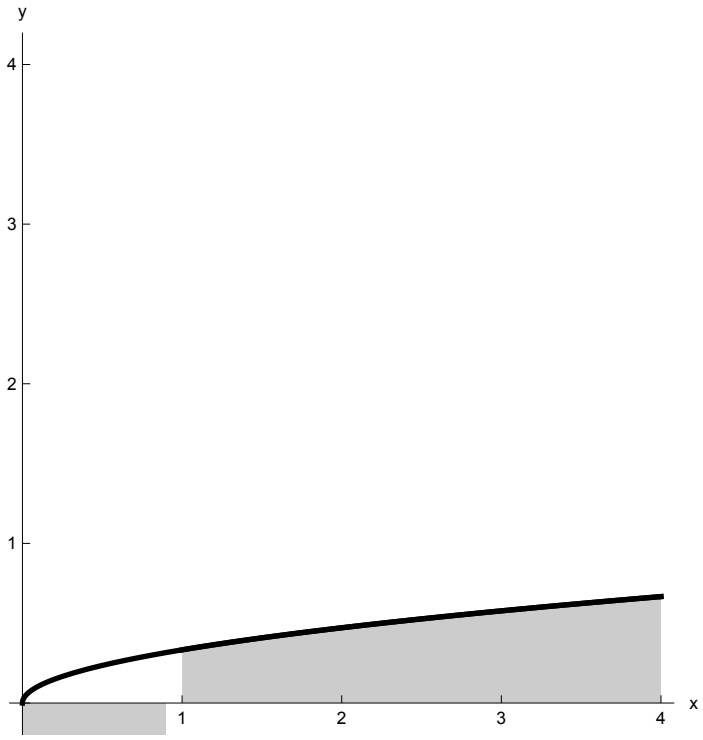

```
Clear[f, g, x];
f[x_] := 1/3 √x /; 1 ≤ x < 4;
f[x_] := -20 /; x < 0.9;
f[x_] := -20 /; 4.5 < x;
g[x_] := 1/3 √x /; 0 ≤ x < 4;
xTicks = Table[n , {n, 0, 4}]
yTicks = Table[n, {n, 0, 4}]
One = Plot[f[x], {x, 0, 4}, PlotRange → {-0.2, 4.2}, Ticks → {xTicks, yTicks},
  PlotStyle -> {{Black, Thickness[0.008]}},
   AxesLabel -> {"x", "y"}, AspectRatio → Automatic, Filling → Axis]
Onne = Plot[g[x], {x, 0, 4}, PlotRange → {-0.2, 4.2}, Ticks → {xTicks, yTicks},
  PlotStyle -> {{Black, Thickness[0.008]}},
   AxesLabel -> {"x", "y"}, AspectRatio → Automatic]
Show[One, Onne]
```

```
{0, 1, 2, 3, 4}
```

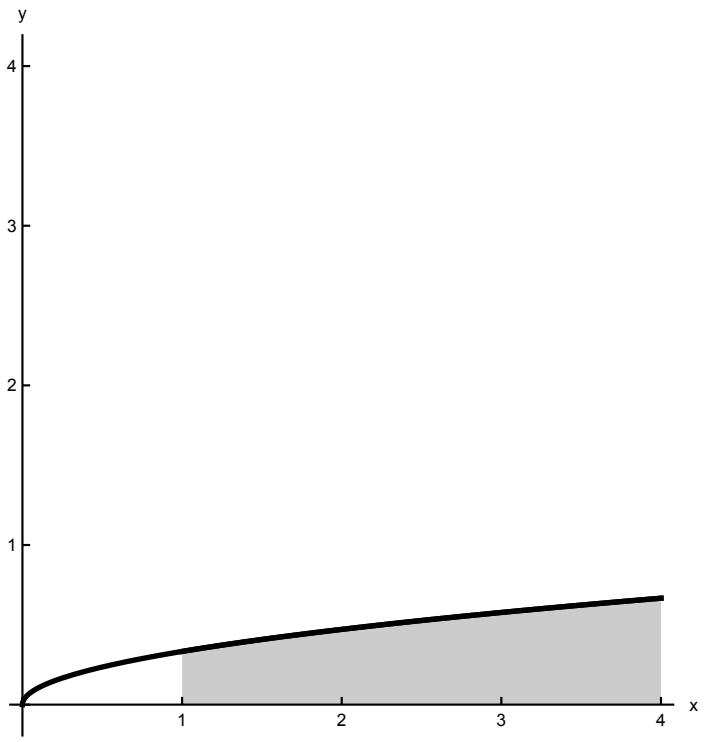
```
{0, 1, 2, 3, 4}
```


y
4
3
2
1
1
2
3
4
x

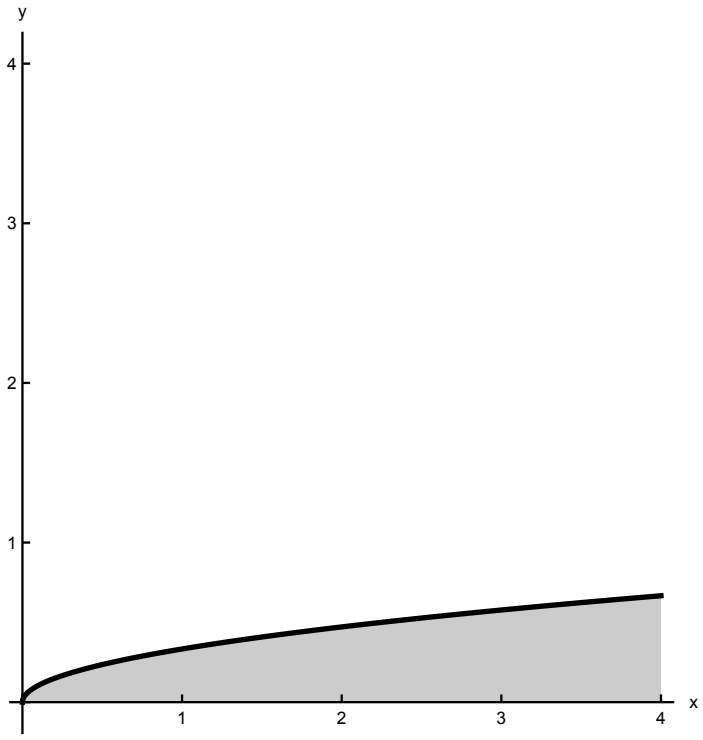

y
4
3
2
1
1
2
3
4
x




```
Show[%179, AxesStyle → Directive[GrayLevel[0], AbsoluteThickness[1.125]], Method →
  {"DefaultBoundaryStyle" → Automatic, "DefaultMeshStyle" → AbsolutePointSize[6],
   "ScalingFunctions" → None, "CoordinatesToolOptions" → {"DisplayFunction" →
      ({({{Identity, Identity}, {Identity, Identity}}[[1, 2]][#1] &)[#1[[1]]],
        ({{Identity, Identity}, {Identity, Identity}}[[2, 2]][#1] &)[
         #1[[2]]]} &), "CopiedValueFunction" →
      ({({{Identity, Identity}, {Identity, Identity}}[[1, 2]][#1] &)[#1[[1]]],
        ({{Identity, Identity}, {Identity, Identity}}[[2, 2]][#1] &)[#1[[2]]]} &)}}]
```


y
4
3
2
1
1
2
3
4
x

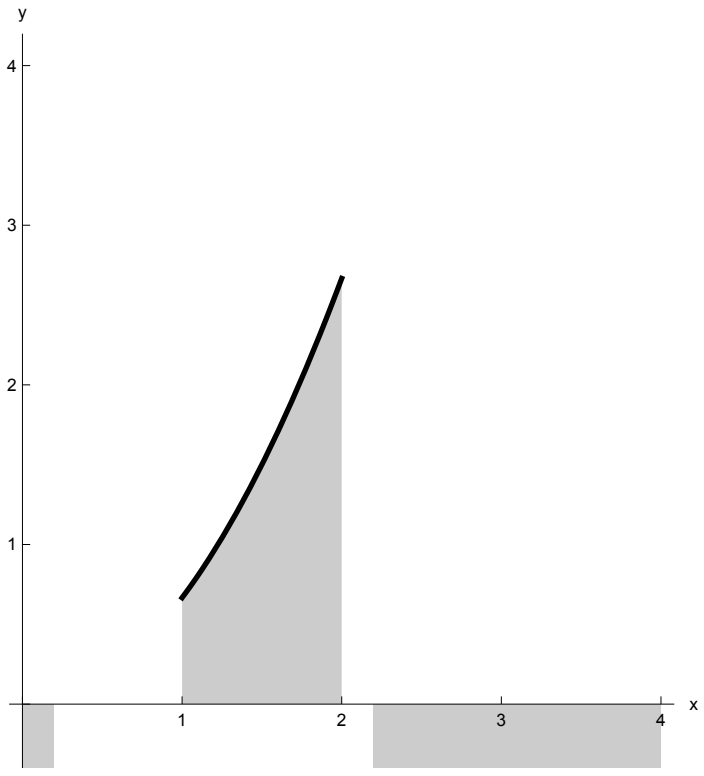
```
Show[One, AxesStyle → Directive[GrayLevel[0], AbsoluteThickness[1.2]], Method →
  {"DefaultBoundaryStyle" → Automatic, "DefaultMeshStyle" → AbsolutePointSize[6],
   "ScalingFunctions" → None, "CoordinatesToolOptions" → {"DisplayFunction" →
      ({({{{Identity, Identity}, {Identity, Identity}}[[1, 2]][#1] &)[#1[[1]]],
         ({{{Identity, Identity}, {Identity, Identity}}[[2, 2]][#1] &)[
          #1[[2]]]} &), "CopiedValueFunction" →
      ({({{{Identity, Identity}, {Identity, Identity}}[[1, 2]][#1] &)[#1[[1]]],
         ({{{Identity, Identity}, {Identity, Identity}}[[2, 2]][#1] &)[#1[[2]]]} &)}}]
```

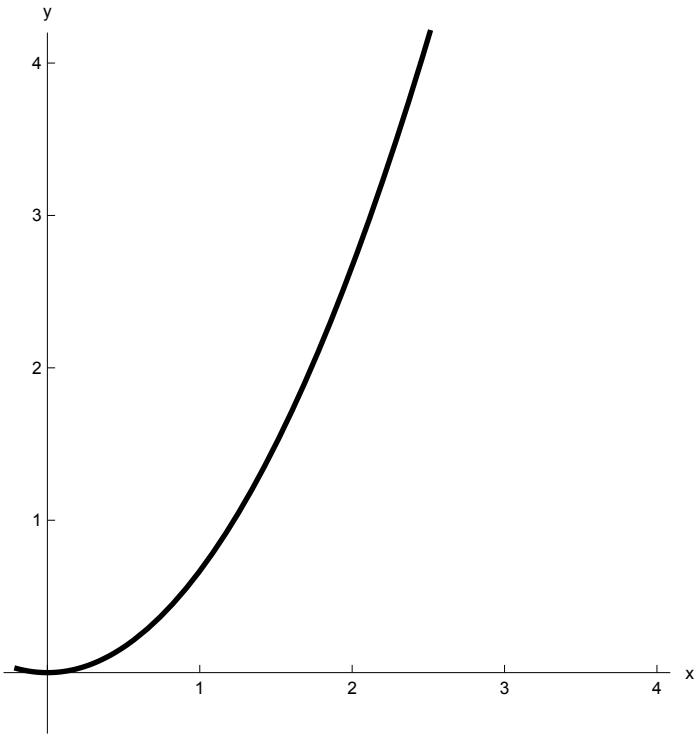


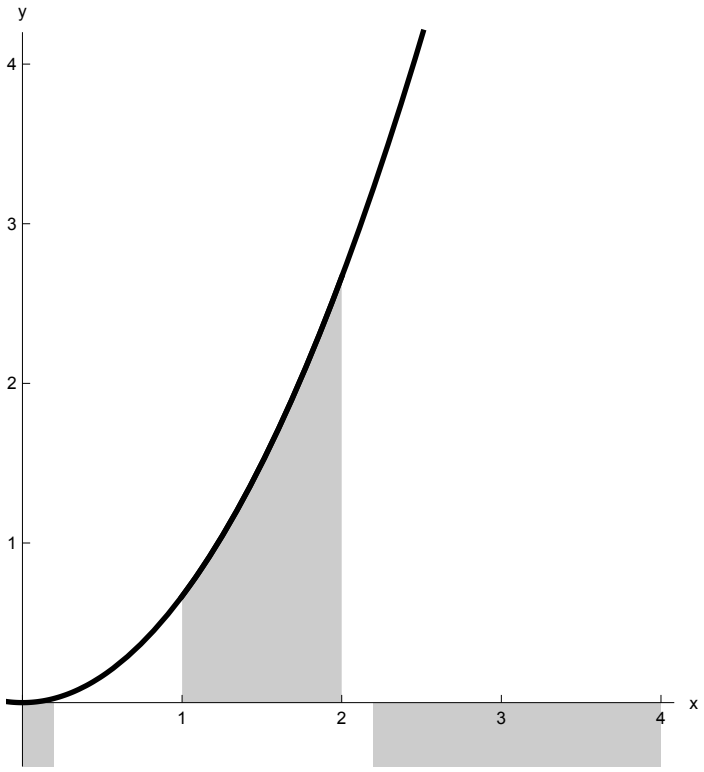
```
Clear[f, g, x];
f[x_] := 2/3 x^2 /; 1 ≤ x < 2;
f[x_] := -20 /; 2.2 ≤ x < 4.8;
f[x_] := -20 /; 0 ≤ x < 0.2;
g[x_] := 2/3 x^2 /; -0.20 ≤ x < 4.2;
xTicks = Table[n , {n, 0, 10}]
yTicks = Table[n, {n, 0, 10}]
One = Plot[f[x], {x, -0.2, 4}, PlotRange → {-0.4, 4.2}, Ticks → {xTicks, yTicks},
  PlotStyle -> {{Black, Thickness[0.008]}},
   AxesLabel -> {"x", "y"}, AspectRatio → Automatic, Filling → Axis]
Onne = Plot[g[x], {x, -0.2, 4}, PlotRange → {-0.4, 4.2}, Ticks → {xTicks, yTicks},
  PlotStyle -> {{Black, Thickness[0.008]}},
   AxesLabel -> {"x", "y"}, AspectRatio → Automatic]
Show[One, Onne]
```

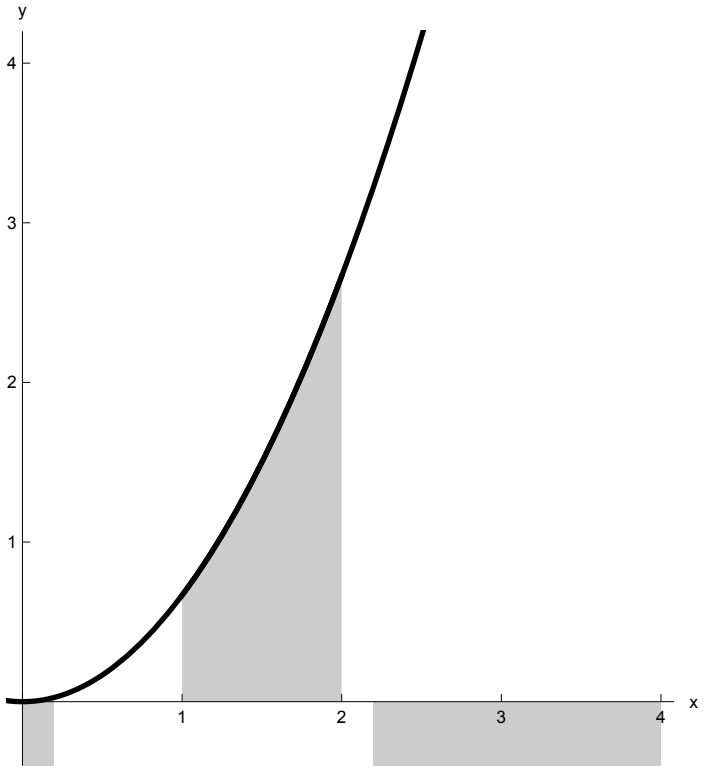
```
{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10}
```

```
{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10}
```

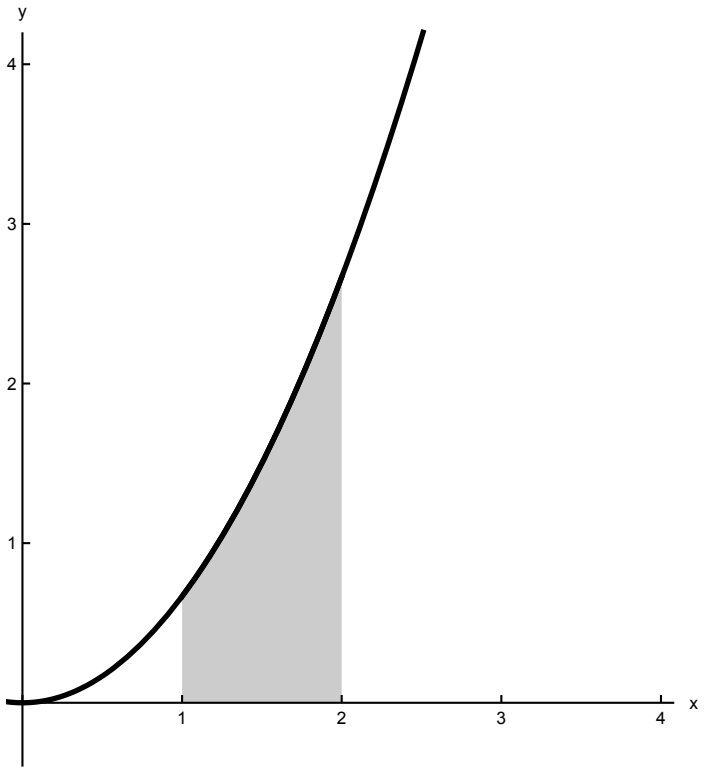


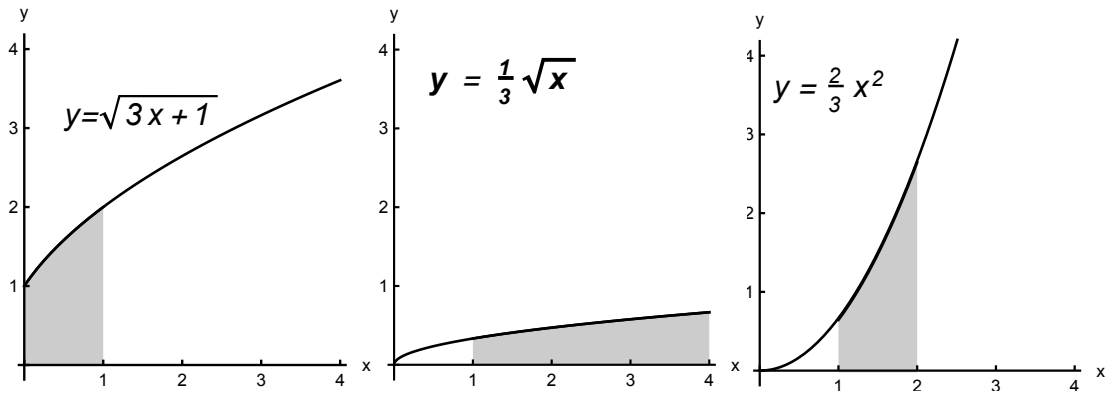

y
4
3
2
1
1
2
3
4
x


y
4
3
2
1
1
2
3
4
x


y
4
3
2
1
1
2
3
4
x

```
Show[%140, AxesStyle → Directive[GrayLevel[0], AbsoluteThickness[1.095]], Method →
  {"DefaultBoundaryStyle" → Automatic, "DefaultMeshStyle" → AbsolutePointSize[6],
   "ScalingFunctions" → None, "CoordinatesToolOptions" → {"DisplayFunction" →
      ({({{{Identity, Identity}, {Identity, Identity}}[[1, 2]][#1] &)[#1[[1]]],
         ({{{Identity, Identity}, {Identity, Identity}}[[2, 2]][#1] &)[
          #1[[2]]]} &), "CopiedValueFunction" →
      ({({{{Identity, Identity}, {Identity, Identity}}[[1, 2]][#1] &)[#1[[1]]],
         ({{{Identity, Identity}, {Identity, Identity}}[[2, 2]][#1] &)[#1[[2]]]} &)}}]
```



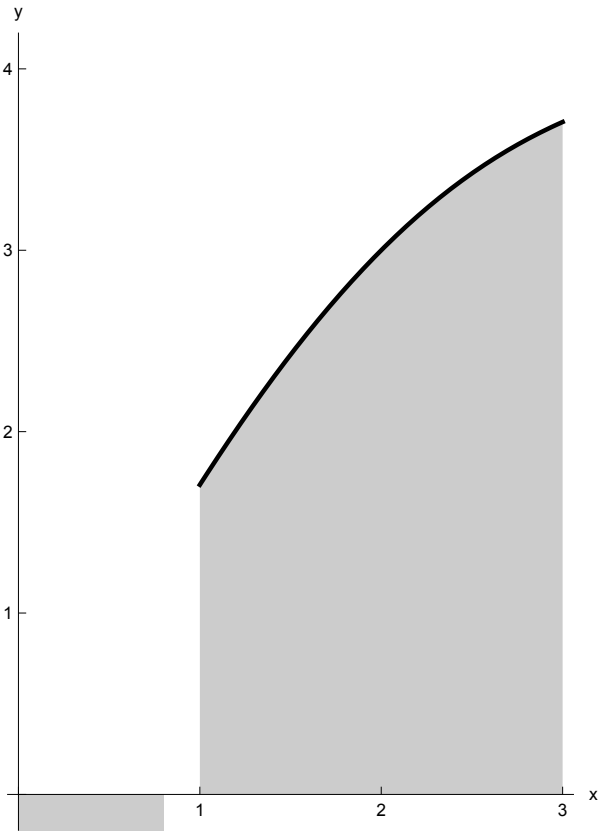


In[181]:=
```
Clear[f, g, x];
f[x_] := x + Sin[π/4 x] /; 1 ≤ x < 3;
f[x_] := -20 /; x < 0.8;
f[x_] := -20 /; 3.2 < x;
g[x_] := x + Sin[π/4 x] /; 0 ≤ x < 4;
xTicks = Table[n , {n, 0, 10}]
yTicks = Table[n, {n, 0, 10}]
One = Plot[f[x], {x, 0, 3}, PlotRange → {-0.2, 4.2}, Ticks → {xTicks, yTicks},
  PlotStyle -> {{Black, Thickness[0.008]}},
   AxesLabel -> {"x", "y"}, AspectRatio → Automatic, Filling → Axis]
Onne = Plot[g[x], {x, 0, 4}, PlotRange → {-0.2, 4.2}, Ticks → {xTicks, yTicks},
  PlotStyle -> {{Black, Thickness[0.008]}},
   AxesLabel -> {"x", "y"}, AspectRatio → Automatic]
Show[One, Onne]
```

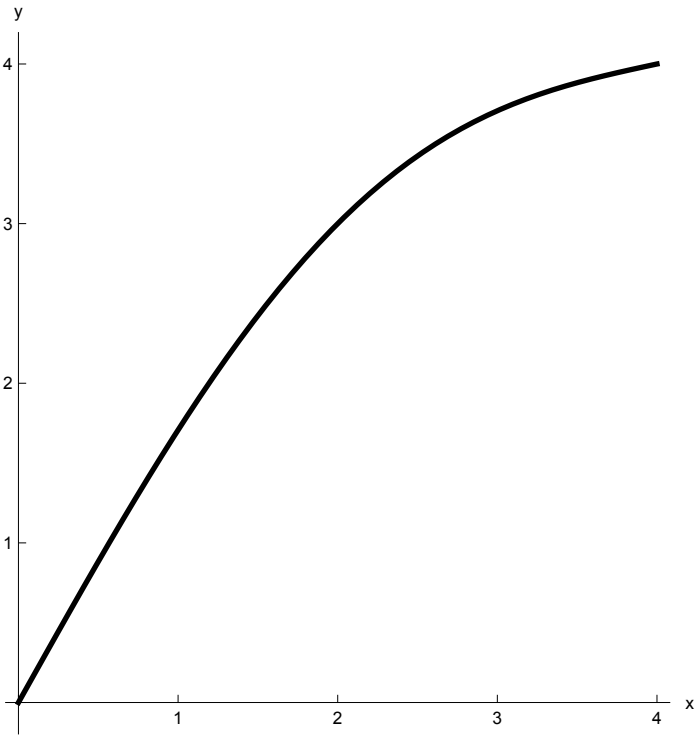
Out[186]= {0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10}

Out[187]= {0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10}

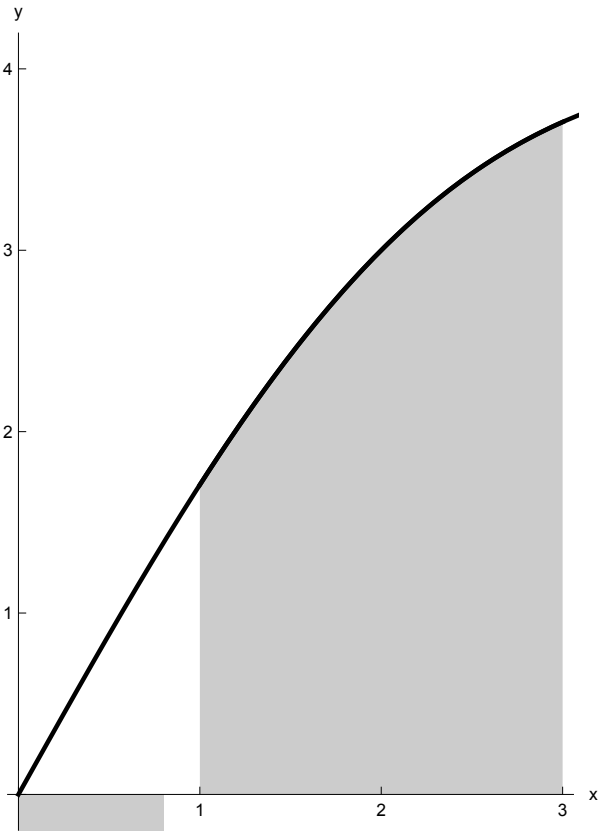
Out[188]=



Out[189]=



Out[190]=



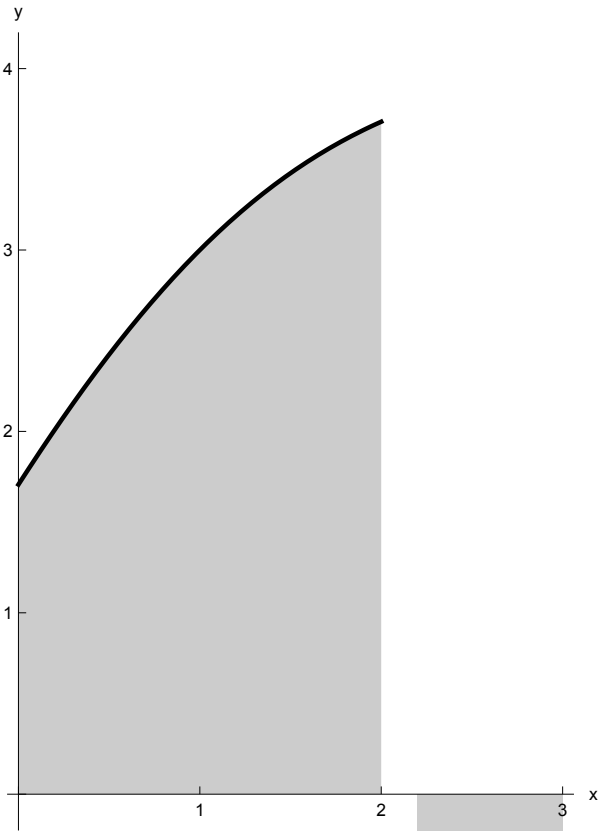
In[191]:=
```
Show[%190, AxesStyle → Directive[GrayLevel[0], AbsoluteThickness[1.02]], Method →
  {"DefaultBoundaryStyle" → Automatic, "DefaultMeshStyle" → AbsolutePointSize[6],
   "ScalingFunctions" → None, "CoordinatesToolOptions" → {"DisplayFunction" →
      (({({{Identity, Identity}, {Identity, Identity}}[[1, 2]][#1] &)[#1[[1]]],
         ({{Identity, Identity}, {Identity, Identity}}[[2, 2]][#1] &)[
          #1[[2]]]} &), "CopiedValueFunction" →
      (({({{Identity, Identity}, {Identity, Identity}}[[1, 2]][#1] &)[#1[[1]]],
         ({{Identity, Identity}, {Identity, Identity}}[[2, 2]][#1] &)[#1[[2]]]} &)}}]
```

In[202]:=
```
Clear[f, g, x];
f[x_] := x + 1 + Sin[π/4 (x + 1)] /; 0 ≤ x < 2;
f[x_] := -20 /; x < -0.8;
f[x_] := -20 /; 2.2 < x;
g[x_] := x + 1 + Sin[π/4 (x + 1)] /; 0 ≤ x < 4;
xTicks = Table[n , {n, 0, 10}]
yTicks = Table[n, {n, 0, 10}]
One = Plot[f[x], {x, 0, 3}, PlotRange → {-0.2, 4.2}, Ticks → {xTicks, yTicks},
  PlotStyle -> {{Black, Thickness[0.008]}},
   AxesLabel -> {"x", "y"}, AspectRatio → Automatic, Filling → Axis]
Onne = Plot[g[x], {x, 0, 3}, PlotRange → {-0.2, 4.2}, Ticks → {xTicks, yTicks},
  PlotStyle -> {{Black, Thickness[0.008]}},
   AxesLabel -> {"x", "y"}, AspectRatio → Automatic]
Show[One, Onne]
```

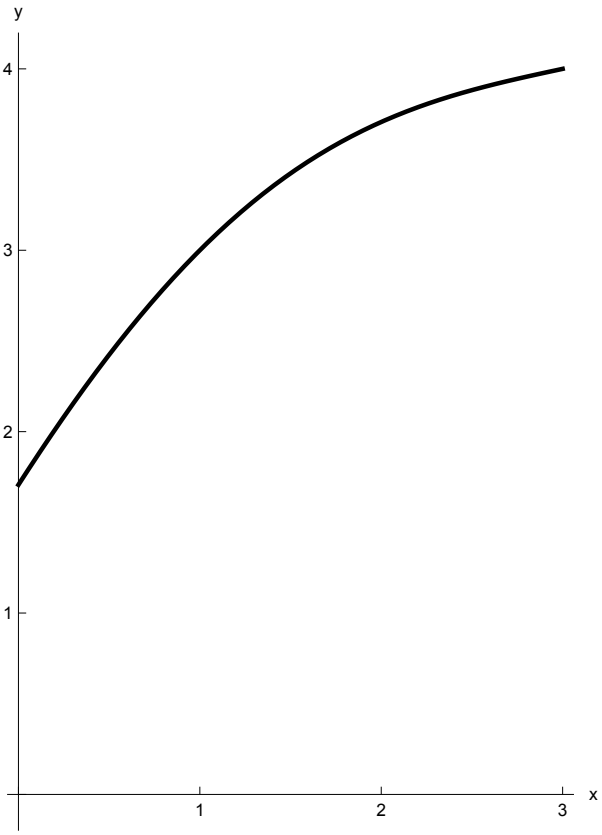
Out[207]= {0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10}

Out[208]= {0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10}

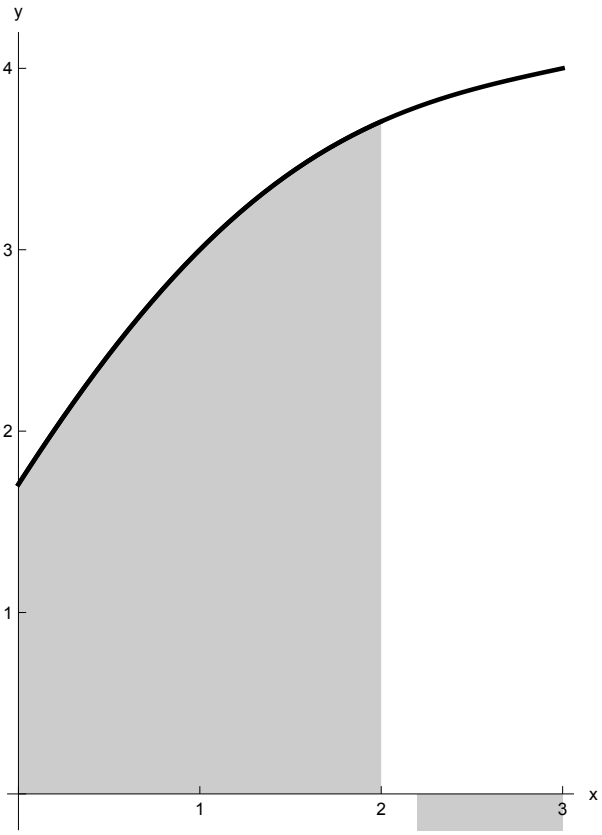
Out[209]=



Out[210]=



Out[211]=



In[212]:=
```
Show[%211, AxesStyle → Directive[GrayLevel[0], AbsoluteThickness[1.105]], Method →
  {"DefaultBoundaryStyle" → Automatic, "DefaultMeshStyle" → AbsolutePointSize[6],
   "ScalingFunctions" → None, "CoordinatesToolOptions" → {"DisplayFunction" →
      ({({{{Identity, Identity}, {Identity, Identity}}[[1, 2]][#1] &)[#1[[1]]],
        ({{{Identity, Identity}, {Identity, Identity}}[[2, 2]][#1] &)[
         #1[[2]]]} &), "CopiedValueFunction" →
      ({({{{Identity, Identity}, {Identity, Identity}}[[1, 2]][#1] &)[#1[[1]]],
        ({{{Identity, Identity}, {Identity, Identity}}[[2, 2]][#1] &)[#1[[2]]]} &)}}]
```