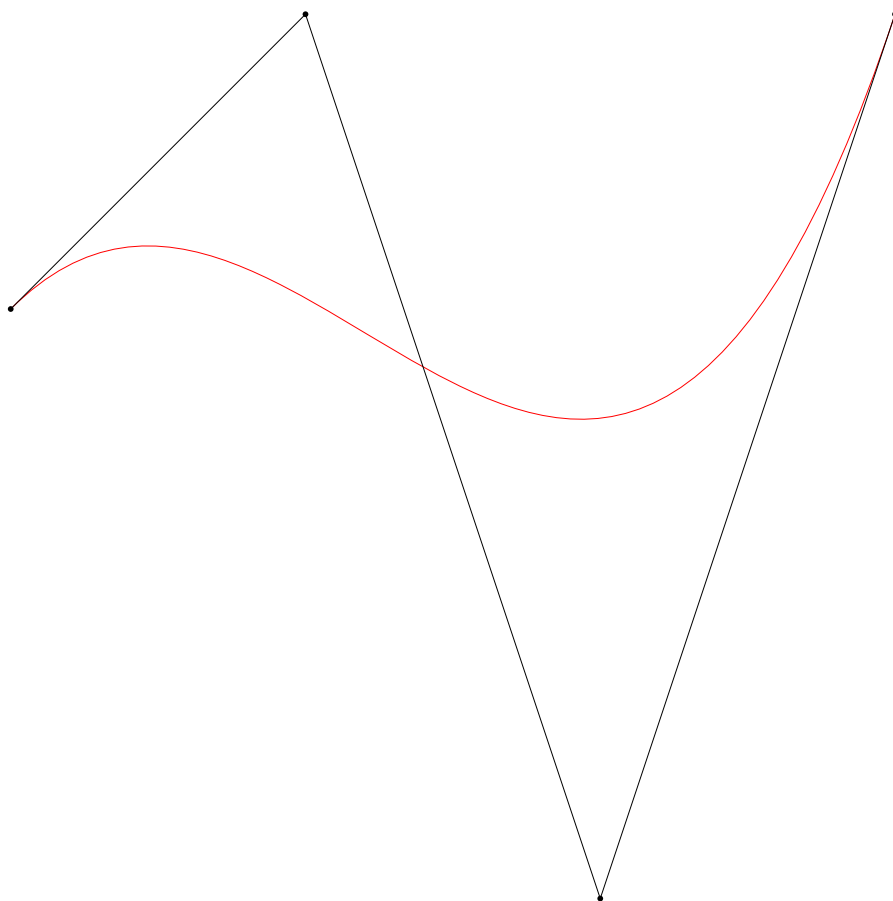


(\*Task 1\*)

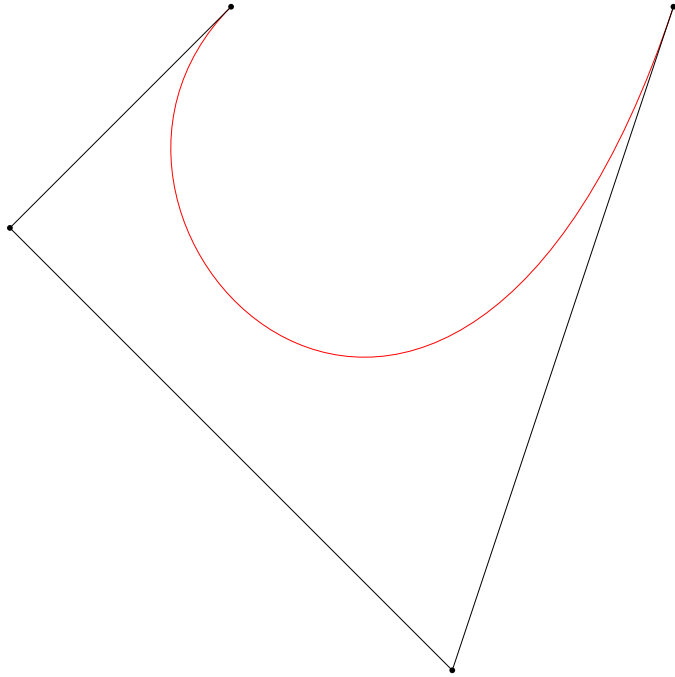
```
In[20]:= Points = {{0, 0}, {1, 1}, {2, -2}, {3, 1}};  
Graphics[{Red, BezierCurve[Points], Black, Line[Points], Black, Point[Points]}]
```

Out[21]=



```
In[22]:= (*Task 2*)  
Points = {{1, 1}, {0, 0}, {2, -2}, {3, 1}};  
Graphics[{Red, BezierCurve[Points], Black, Line[Points], Black, Point[Points]}]
```

Out[23]=



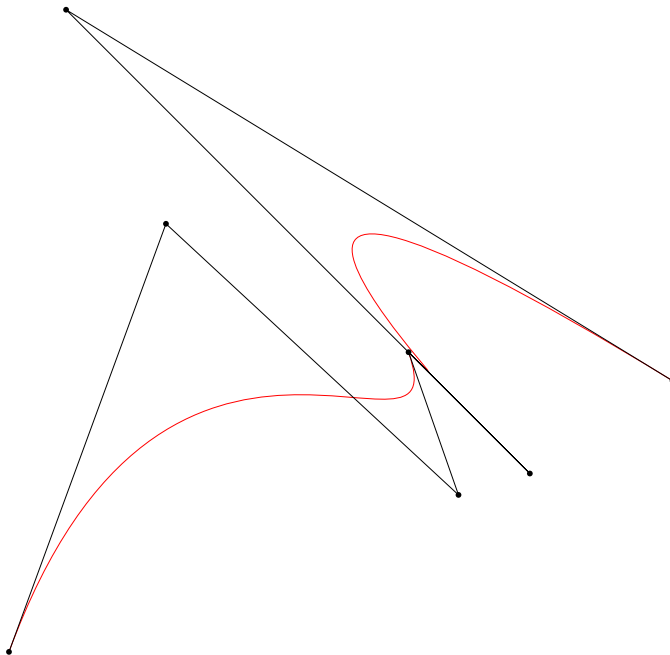
(\* From the second plot,  
we can tell that the Bezier Curve obtained by changing the order of  
the control points (P1,P0,P2,P3) is not the same as the initial one \*)

```

In[193]:= (* Task 3 *)
n = 6;
Points = {{1, 0}};
(*RandomPoint*)
For[i = 1, i ≤ n, i++,
  x = RandomInteger[{0, 100}];
  y = RandomInteger[{0, 100}];
  AppendTo[Points, {x, y}];
];
Graphics[{Red, BezierCurve[Points], Black, Line[Points], Black, Point[Points]}]

```

Out[196]=



(\* Task 4 \*)

(\*Step 0\*)

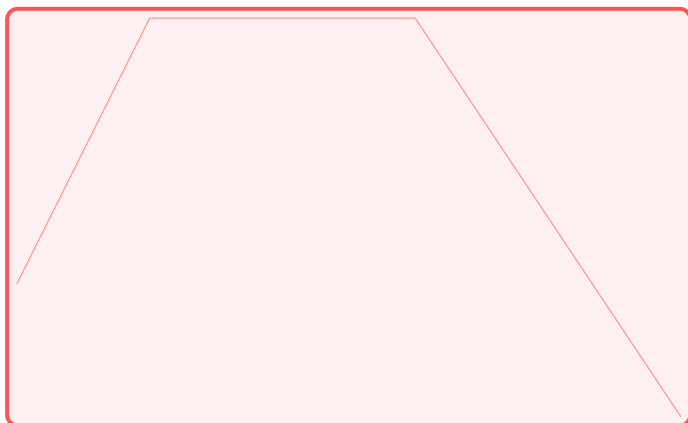
```

In[351]:= P0 = {{0, 0}, {1, 2}, {3, 2}, {5, -1}};

```

In[350]:= **Graphics[{Pink, Line[Points0], Black, Point[P0]}]**

Out[350]=

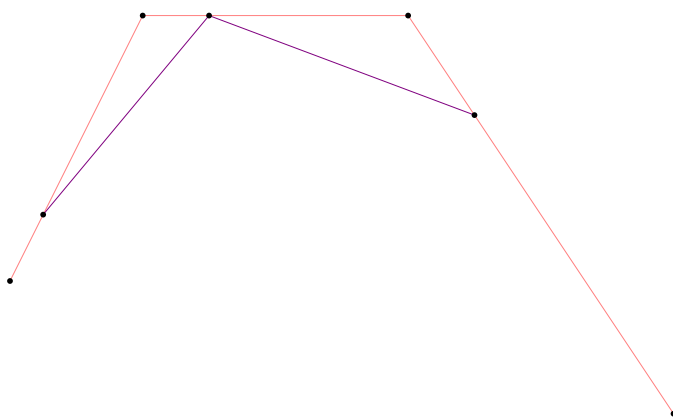


**(\* Step 1\*)**

In[384]:=

```
P1 = {};
t = 1/4;
For[i = 1, i ≤ 3, i++,
  M1[x, y] = P0[[i]] * (1 - t) + P0[[i + 1]] * t;
  AppendTo[P1, M1[x, y]];
];
(*Print[Points1]*)
Graphics[{Pink, Line[P0], Black, Point[P0], Purple, Line[P1], Black, Point[P1]}]
```

Out[387]=



**(\*Task 5\*)**

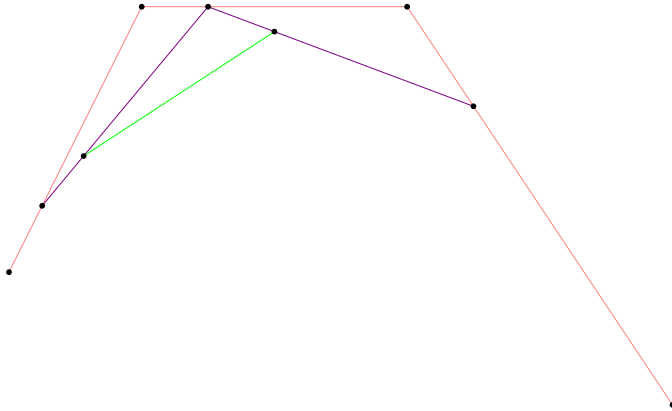
**(\*Step 2\*)**

```

In[388]:= P2 = {};
t = 1/4;
For[i = 1, i ≤ 2, i++,
M2[x, y] = P1[[i]] * (1 - t) + P1[[i + 1]] * t;
AppendTo[P2, M2[x, y]];
];
Graphics[{Pink, Line[P0], Black, Point[P0], Purple,
Line[P1], Black, Point[P1], Green, Line[P2], Black, Point[P2]]}

```

Out[391]=



```

In[394]:= (* Task 6*)
(*Step 3*)
P3 = {};
t = 1/4;

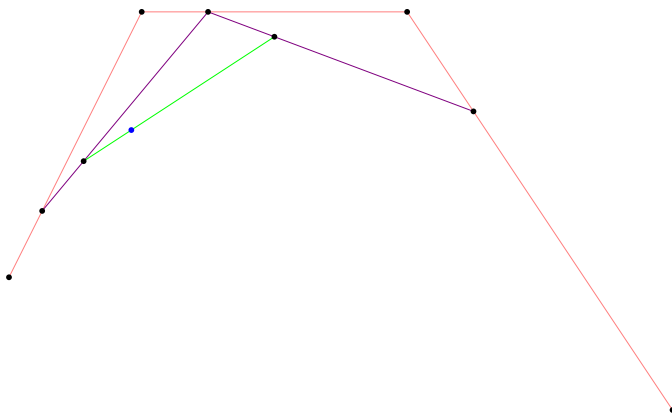
```

```

In[396]:= M3[x, y] = P2[[1]] * (1 - t) + P2[[2]] * t;
AppendTo[P3, M3[x, y]];
Graphics[{Pink, Line[P0], Black, Point[P0], Purple, Line[P1],
Black, Point[P1], Green, Line[P2], Black, Point[P2], Blue, Point[P3]]}

```

Out[398]=



```

(*Task 7*)
(* t=1/10 *)

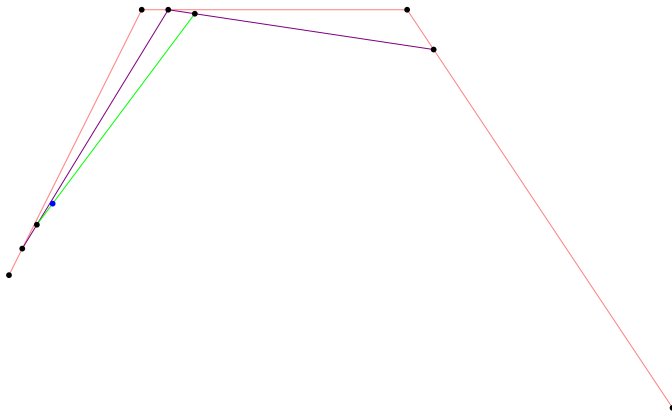
```

```

In[421]:= P0 = {{0, 0}, {1, 2}, {3, 2}, {5, -1}};
P1 = {};
t = 1/10;
For[i = 1, i ≤ 3, i++,
M1[x, y] = P0[[i]]*(1 - t) + P0[[i + 1]]*t;
AppendTo[P1, M1[x, y]];
];
P2 = {};
For[i = 1, i ≤ 2, i++,
M2[x, y] = P1[[i]]*(1 - t) + P1[[i + 1]]*t;
AppendTo[P2, M2[x, y]];
];
P3 = {};
M3[x, y] = P2[[1]]*(1 - t) + P2[[2]]*t;
AppendTo[P3, M3[x, y]];
Graphics[{{Pink, Line[P0], Black, Point[P0], Purple, Line[P1],
Black, Point[P1], Green, Line[P2], Black, Point[P2], Blue, Point[P3]]}

```

Out[430]=

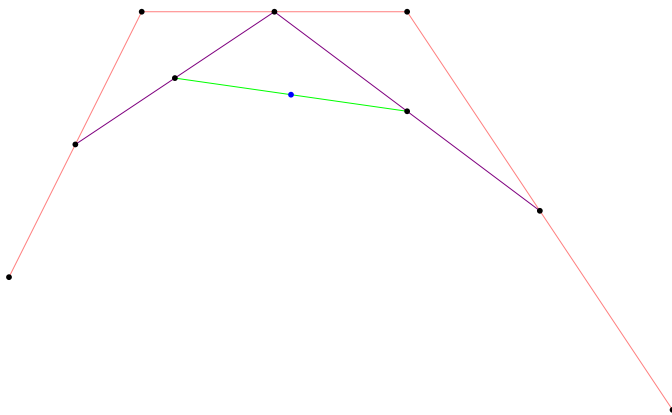


```

In[431]:= (* t= 1/2*)
P0 = {{0, 0}, {1, 2}, {3, 2}, {5, -1}};
P1 = {};
t = 1/2;
For[i = 1, i ≤ 3, i++,
M1[x, y] = P0[[i]]*(1 - t) + P0[[i + 1]]*t;
AppendTo[P1, M1[x, y]];
];
P2 = {};
For[i = 1, i ≤ 2, i++,
M2[x, y] = P1[[i]]*(1 - t) + P1[[i + 1]]*t;
AppendTo[P2, M2[x, y]];
];
P3 = {};
M3[x, y] = P2[[1]]*(1 - t) + P2[[2]]*t;
AppendTo[P3, M3[x, y]];
Graphics[{Pink, Line[P0], Black, Point[P0], Purple, Line[P1],
Black, Point[P1], Green, Line[P2], Black, Point[P2], Blue, Point[P3]}]

```

Out[440]=



(\* Task 8 \*)