

```
1  ###
2  # Setup
3  import numpy as np
4
5  B = (1, 0, -1)
6  C = (-4, -2, 1)
7  D = (-2, 5, 3)
8
9  ###
10 # Calculate area of triangle BCD
11 BC = [c - b for b, c in zip(B, C)]
12 BD = [d - b for b, d in zip(B, D)]
13 A_BCD = 0.5 * np.linalg.norm(np.cross(BC, BD))
14 print(f"Area of triangle BCD: {A_BCD}")
15
16 ###
17 # Find plane of triangle BCD
18 n = np.cross(BC, BD)
19 right = np.dot(n, B)
20
21 # %%
22 # Find height of pyramid
23 P = (3, -2, 5)
24 H = np.abs(n[0] * P[0] + n[1] * P[1] + n[2] * P[2] - right) / np.sqrt(
25     np.square(n[0]) + np.square(n[1]) + np.square(n[2])
26 )
27
28 # %%
29
```