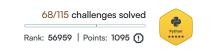
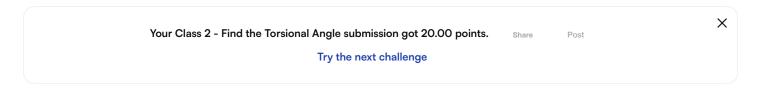
Class 2 - Find the Torsional Angle *





Problem Submissions Leaderboard Editorial 🖰

You are given four points A, B, C and D in a 3-dimensional Cartesian coordinate system. You are required to print the angle between the plane made by the points A, B, C and B, C, D in degrees(not radians). Let the angle be PHI.

Cos(PHI) = (X.Y)/|X||Y| where $X = AB \times BC$ and $Y = BC \times CD$.

Here, $\boldsymbol{X}.\boldsymbol{Y}$ means the dot product of \boldsymbol{X} and \boldsymbol{Y} , and $\boldsymbol{AB} \times \boldsymbol{BC}$ means the cross product of vectors \boldsymbol{AB} and \boldsymbol{BC} . Also, $\boldsymbol{AB} = \boldsymbol{B} - \boldsymbol{A}$.

Input Format

One line of input containing the space separated floating number values of the X,Y and Z coordinates of a point.

Output Format

Output the angle correct up to two decimal places.

Sample Input

- 0 4 5
- 1 7 6
- 0 5 9 1 7 2

Sample Output

8.19

Change Theme Language Python 3

```
1
     import math
2
     class Points(object):
3
4
         def __init__(self, x, y, z):
             self.x = x
5
             self.y = y
6
7
             self.z = z
8
9
        def __sub__(self, no):
10
             return Points(self.x-no.x, self.y-no.y, self.z-no.z)
11
12
         def dot(self, no):
             return self.x*no.x + self.y*no.y + self.z*no.z
13
14
15
         def cross(self, no):
             return Points(self.y*no.z - self.z*no.y,
```

Line: 1 Col: 1 ${\sf EMACS}$ Run Code Submit Code Test against custom input You have earned 20.00 points! 68/115 challenges solved. 59% Congratulations Next Challenge You solved this challenge. Would you like to challenge your friends? Compiler Message Success Input (stdin) Download 1 0 4 5 2 176 3 0 5 9 4 172 Download Expected Output 1 8.19

Blog | Scoring | Environment | FAQ | About Us | Helpdesk | Careers | Terms Of Service | Privacy Policy