

Assignment-2

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Download all python codes from

<https://github.com/satyasm45/Summer-Internship/tree/main/Assignment-2/Codes>

and latex-tikz codes from

<https://github.com/satyasm45/Summer-Internship/tree/main/Assignment-2/Figs>

$$\cos A = \frac{\|\mathbf{B} - \mathbf{A}\|^2 + \|\mathbf{D} - \mathbf{A}\|^2 - \|\mathbf{D} - \mathbf{B}\|^2}{2 \times \|\mathbf{B} - \mathbf{A}\| \times \|\mathbf{D} - \mathbf{A}\|} \quad (2.0.1)$$

$$\cos A = \frac{5^2 + 6^2 - 5^2}{2 \times 5 \times 6} \quad (2.0.2)$$

$$\Rightarrow \angle A = \cos^{-1}(0.6) \quad (2.0.3)$$

1 QUESTION No. 2.28

Construct a quadrilateral ABCD such that AB = 5, $\angle A = 50^\circ$, AC = 4, BD = 5 and AD = 6.

So $\angle A = 53.13^\circ$.

But $\angle A = 50^\circ$ is given which causes a mismatch. Therefore construction of quadrilateral with given measurements is not possible.

2 EXPLANATION

The rough figure of the expected quadrilateral ABCD is given in Fig. 2.1

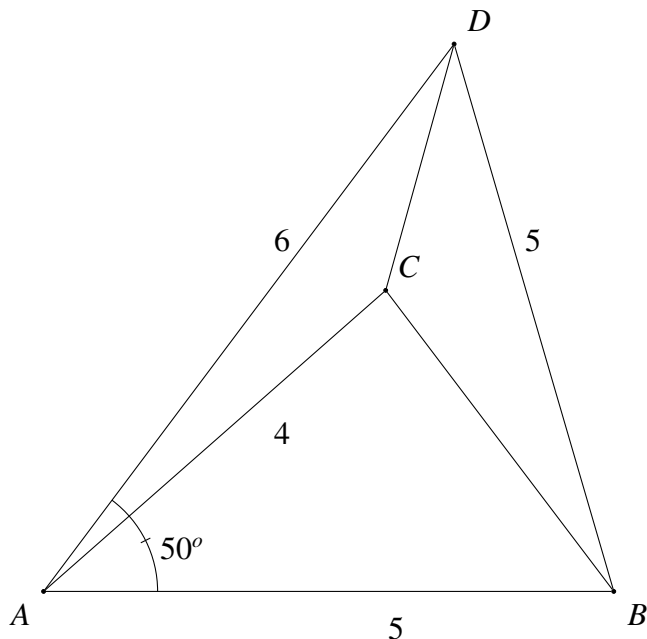


Fig. 2.1: Rough Figure

For this quadrilateral adjacent side lengths AB, AD and diagonal BD is known. Three sides of $\triangle ABD$ are therefore known.

So, $\angle A$ can also be found out using the Cosine Rule. But value for $\angle A$ is given. So we need to verify it.