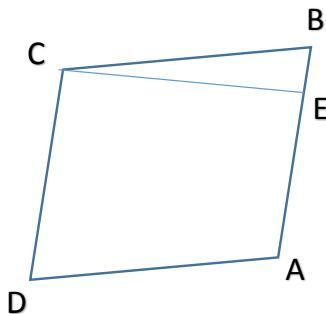


If the points A(1,-2), B(2,3), C(-3,2) and D(-4,-3) are the vertices of parallelogram ABCD, then taking AB as the base, find the height of this parallelogram.(EC)



Solution:

1) Find length of BC:

$$BC = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$BC = \sqrt{(-3 - 2)^2 + (2 - 3)^2} = \sqrt{26}$$

2) Find length of AB:

$$AB = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$AB = \sqrt{(2 - 1)^2 + (3 + 2)^2} = \sqrt{26}$$

3) Find length of AC:

$$AC = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$AC = \sqrt{(-3 - 1)^2 + (2 + 2)^2} = \sqrt{32}$$

4) Find Angle B:

$$\cos B = \frac{BC^2 + AB^2 - AC^2}{2|AB||BC|}$$

$$\cos B = \frac{26+26-32}{52} = 0.38$$

5) Find length of EC:

$$EC = BC * \sin B = BC * \sqrt{1 - \cos^2 B} = \sqrt{26} * 0.92 = 4.71$$

Answer: 4.71