A Book of Abstract Algebra | (2nd Edition)

Chapter 30, Problem 1EB   Bookmark   Show all steps: **ON**

Problem

Prove each of the following:

Let $\mathcal{A}$ be any set of points in the plane; (a, b) is constructible from $\mathcal{A}$ iff $(a, 0)$ and $(0, b)$ are constructible from $\mathcal{A}$.

Step-by-step solution

Step 1 of 3

Here, objective is to prove that (a,b) is constructible from A, if and only if $(a,0)$ and $(0,b)$ are constructible from A.

Comment

Step 2 of 3

Constructible point:

The point is either the end point of given unit segment or it is the intersection of two lines

determined by previous constructible points is called as constructible point.

Step 3 of 3

Let A be the set of points in the plane.

Consider the below figure:
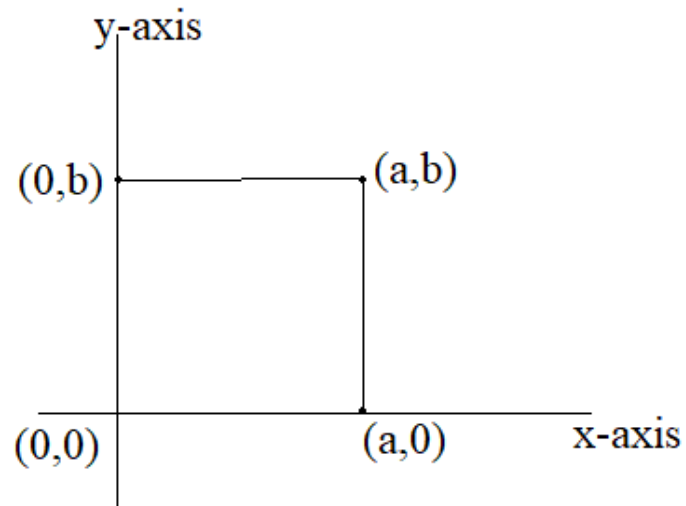

figure:construction of (a,b)

Consider $(a,0)$ and $(0,b)$ are constructible from A.

Construct perpendicular lines to the x-axis and y-axis passing through $(a,0)$ and $(0,b)$.

Then the perpendicular lines intersect at the point (a,b).

Therefore, (a,b) is constructible from A, if and only if $(a,0)$ and $(0,b)$ are constructible from A.

Hence, proved

Comment

COMPANY

About Chegg
Chegg For Good
College Marketing
Corporate Development
Investor Relations
Jobs
Join Our Affiliate Program
Media Center
Site Map

LEGAL & POLICIES

Advertising Choices
Cookie Notice
General Policies
Intellectual Property Rights
Terms of Use
Global Privacy Policy

Honor Code
Honor Shield

CHEGG PRODUCTS AND SERVICES

Cheap Textbooks
Chegg Coupon
Chegg Play
Chegg Study Help
College Textbooks
eTextbooks
Flashcards
Learn
Chegg Math Solver

Mobile Apps
Sell Textbooks
Solutions Manual
Study 101
Textbook Rental
Used Textbooks
Digital Access Codes
Chegg Money

CHEGG NETWORK

EasyBib
Internships.com
Thinkful

CUSTOMER SERVICE

Customer Service
Give Us Feedback
Help with eTextbooks
Help to use EasyBib Plus
Manage Chegg Study
Subscription
Return Your Books
Textbook Return Policy