International Journal on Integrated Education
https://journals.researchparks.org/index.php/IJIE
e-ISSN : 2620 - 3502
p-ISSN : 2615 - 3785

Planimetric issues in solution coordinates method choose

M.M. Esonov
KDPI. "Mathematics"
senior teacher of the department
e-mail.esonovm@mail.ru

R.H. Akhmedova
KDPI Listener

Annotation *. In this article, the advantages of using the method of coordinates for geometric problems and its use in solving problems.*
Key words *: formation, space, coordinate method, distance between two points, point coordinate.*

Enter

The coordinate method was first used by Descartes in solving geometric problems. This method describes every geometric relationship of a shape or object corresponds to the equation connecting the coordinates of It allows you to study geometric shapes and their properties using equations and inequalities.

The idea of coordinates and the equation of a curve were not alien to the ancient Greeks. Archimedes and especially Perga Apollonius gave signs of conic sections in their works, which in some cases correspond to our equations.

The vector and coordinate method is introduced and studied in the school mathematics course, the needs of the educational process require students to know and solve the simplest problems related to these concepts in the lessons of physics, mathematics and geography.

When using this method, the following goals will make it easier to solve the problem: pay attention to the content of the method in its application, identify the main formulas and theorems, and be able to demonstrate the application of the method in solving a specific problem.

master certain techniques of vector and coordinate methods in solving geometric problems and to be able to use them in solving problems, it is necessary to know the theory, analyze the situation of the problem in detail, and apply the existing knowledge to solve a specific problem.

The choice of coordinate method is geometric issues e is connected to q in chish . The process of solving each problem solved using the coordinate method is conditionally divided into three stages:

1. Enter the coordinate system in the form that is convenient for you and rewrite the view of the problem in the form of coordinates;
2. A problem written in coordinate form transform and get its solution in coordinate form;
3. The solution of the problem obtained in coordinate ratios should be translated into the given "language" of the initial problem and write the answer.

It is appropriate to use the following methods when using the coordinate method in solving planimetric problems.

Method 1. Coordinate-vector method

Method 2. Geometric method

Let's look at the examples. We bring the necessary theoretical information to the problem. Masala serves as a base phrase in the work.

e-ISSN : 26203502
p-ISSN : 26153785

in the plane OXY, and let each point of the plane $(x;y)$correspond to the so-called point coordinates - even numbers.

$A(x_1;y_1)$and $B(x_2;y_2)$the distance between the points $d_{AB}=\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$ is found by the formula.

Through this formula, $AB.$ the length of the section is also found.

AB of the midpoint of the section $(x_0;y_0)$is found by the following formula

$$x_0=\frac{x_1+x_2}{2};y_0=\frac{y_1+y_2}{2}$$

If a rectangular Cartesian coordinate system $OXYZ$ is given in space, then the formulas given above are valid in space as well. In it, three numbers correspond to each point in space $(x;y;z)$.

$A(x_1;y_1;z_1)$and $B(x_2;y_2;z_2)$the distance between the points $d_{AB}=\sqrt{(x_2-x_1)^2+(y_2-y_1)^2+(z_2-z_1)^2}$ is found by the formula.

The coordinates $(x_0;y_0;z_0)$of the middle segment AB are determined by the formula

$x_0=\frac{x_1+x_2}{2};y_0=\frac{y_1+y_2}{2};z_0=\frac{z_1+z_2}{2}$the middle $(x_0;y_0;z_0)$point of the section is found by this formula AB.

Issue 1. If $A(6;7;8),B(8;2;6),C(4;3;2),D(2;8;4)$the points $ABCD$ meet the vertices of a rectangle, then what shape does the rectangle represent? 1) trapezoid, 2) parallelogram, 3) rectangle, 4) rhombus, 5) square.

Solving. $\overrightarrow{AB};\overrightarrow{BC};\overrightarrow{CD};\overrightarrow{DA}.$we find the coordinates of the following vectors $\overrightarrow{AB}(2;-5;-2),\overrightarrow{BC}(-4;1;-4),\overrightarrow{CD}(-2;5;2),\overrightarrow{DA}(4;-1;4).$

All vectors are pairwise parallel $\overrightarrow{AB}\parallel\overrightarrow{CD}$(because $\frac{2}{-2}=\frac{-5}{5}=\frac{-2}{2}$) and $\overrightarrow{BC}\parallel\overrightarrow{DA}$(because $\frac{-4}{4}=\frac{1}{-1}=\frac{-4}{4}$). In addition,$\left|\overrightarrow{AB}\right|=\sqrt{2^2+(-5)^2+(-2)^2}=\sqrt{33},\left|\overrightarrow{BC}\right|=\sqrt{(-4)^2+1^2+(-4)^2}=\sqrt{33},$ $\left|\overrightarrow{CD}\right|=\left|\overrightarrow{DA}\right|=\sqrt{33}.$All sides of a rectangle are equal in length and parallel to the pair. $\overrightarrow{AB}$ and $\overrightarrow{BC}$ if we calculate the scalar product of vectors: $\overrightarrow{AB}\cdot\overrightarrow{BC}=2\cdot(-4)+(-5)\cdot1+(-2)\cdot(-4)=-5\neq0,$then the angle between the vectors is different from 90^0. Thus, when the given rectangle is checked, its properties represent a rhombus. Hence, the given rectangle is a rhombus. Answer: 4.

We refer the following issues to independent implementation.

Issue 2. Find the equation of the median of the triangle with AM vertices $A(1;3);B(5;-7)$and $C(-1;9)$points ABC. 1) $y=-2x+5;2)$ $y=2x-5;3)$ $y=-2x-5;4)$ $y=-2x-1;5)$ $y=x+2.$

Issue 3. If the points $A(2;0)$and $B(-2;6)$ are the endpoints of the diameter of the circle, then find the equation of the circle.

1) $(x-3)^2+y^2=13;2)$ $x^2+(y+3)^2=13;3)$ $(x+3)^2+y^2=15;4)$ $x^2+(y-3)^2=13;5)$ $x^2+(y+3)^2=15.$

Problem 4. If the point $OX,$ is relevant, $A(-2;2)$ and $B(-1;3),$the points are equidistant, then what is the sum of the coordinates of the point 1) -2; 2) 2; 3)-1; 4) 1; 5) 0.

Conclusion

Using the method of coordinates greatly simplifies the solution of problems, and in some cases it

e-ISSN : 26203502
p-ISSN : 26153785

is the optimal way to solve them.

In some cases, the use of vectors in solving computational problems is preferable to constructive approaches involving the use of additional constructions, elementary algebra, and trigonometry.

Used literature.

1. Esonov M.M. Importance of information environment in preschool and elementary school students in understanding the essence of mathematical concepts. // Scientific-methodical journal, Nauchno-methodichesky journal, Scientific-methodical journal. VOL 1, ISSUE 3, SEPTEMBER 2020. 1 – VOLUME. pp. 283-288

2. Esonov M.M. Prakticheskie basic training methods, visual solutions, tasks and course geometry. // Theory and practice of contemporary humanitarian and aesthetic science. Sbornik nauchnyx statey. XVI Mejregionalnaya nauchno-prakticheskaya conference. Petropavloks-Kamchatsk. 2016. Vypusk 6. Chast 2. S. 155-159.

3. Esonov M.M., Zunnunova D.T. Razvitie mathematicheskogo myshleniya na urokax geometrii posredstvom zadach na issledovanie parametrov izobrazheniya. // Vestnik KRAUNTs. Physical and mathematical science. Petropavloks-Kamchatsk. 2020. T. 32. No. 3. C. 197-209.

4. Faxriddinjon o’g’li V. F. et al. HYPERGEOMETRIC FUNCTIONS OF SEVERAL VARIABLES //Open Access Repository. – 2023. – T. 9. – №. 6. – C. 250-252.

5. Faxriddinjon o’g’li V. F. et al. EXPANSIONS OF HYPERGIOMETRIC FUNCTIONS OF SEVERAL VARIABLES ACCORDING TO KNOWN FORMULAS //Galaxy International Interdisciplinary Research Journal. – 2023. – T. 11. – №. 6. – C. 548-550.

6. Faxriddinjon o'g'li V. F. On Generalized Derivations Of Jordon Algebras //Open Access Repository. – 2022. – T. 9. – №. 11. – C. 340-343