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VISUAL GRAPH OF HIGHER SECONDARY MATHEMATICS EDUCATION USING THE OPEN SOURCE SOFTWARE GEOGEBRA

J. Sengamala Selvi
Assistant Professor, Sri Chandrasekharendra Saraswathi Viswa Mahavidyalaya, Enathur, kanchipuram, Tamilnadu, India

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ABSTRACT

ICT popularly known, involve in the most general since the use of technology in managing and processing information. ICT provides "anytime, anywhere" access to reliable information. It paves the way for construction of knowledge by any individual. A belief promoted in the research literature (Fasieyitan, Libii and Hirchbuhl 1996) and amongst the administration is that university/college education can make imaginative or innovative use of ICT to enrich the learning environment and support student learning. It can be used to make students' facet knowledge public and help them develop math cognitive skills to become more reflective and self regulated learners. A shift from teacher-centered instruction to learner-centered instruction is needed to enable students to acquire the new millennium knowledge and skills. The shift will take place in changing from a focus on teaching to a focus on learning (sanclhots, Ringstaff and Dwyer 1977). This paper prominence the execution of Visual graph of Higher secondary Mathematics Education.

Keywords: Geogebra, Higher secondary Mathematics, ICT, Visual Graph.

I. INTRODUCTION

Geogebra is free dynamic Mathematical software designed to work on different operating systems. It is an Interactive geometry System. It has flexible user interface. It is open source software. Geogebra was translated to more than 25 languages. It won European and German educational software award. It can be downloaded without any cost with the help of internet access. Geogebra will be a supporting Tool to promote the education level. In Geogebra there is a possibility to find the area of conics, complex root of a polynomial, derivative of a function and definite integral values over the interval, determinant of the matrix and to solve the set of equations and It is used to calculate the limit of the function. It offers commands, functions and events to do the task easily.

Geogebra equips the higher secondary students with enough knowledge and skills and increase their ability in problem solving in Mathematics Geogebra is the most powerful Open source Mathematics software. While learning Mathematics with Geogebra, students can overcome obstacles and achieve their learning objectives. This type of new methodology definitely encourages the students to develop and expand their knowledge in Mathematics concepts. All level students can easily understand the Mathematics problem easily. It will help to remove the fear of Mathematics. The visual display of data clarifies the students doubt in Mathematics.

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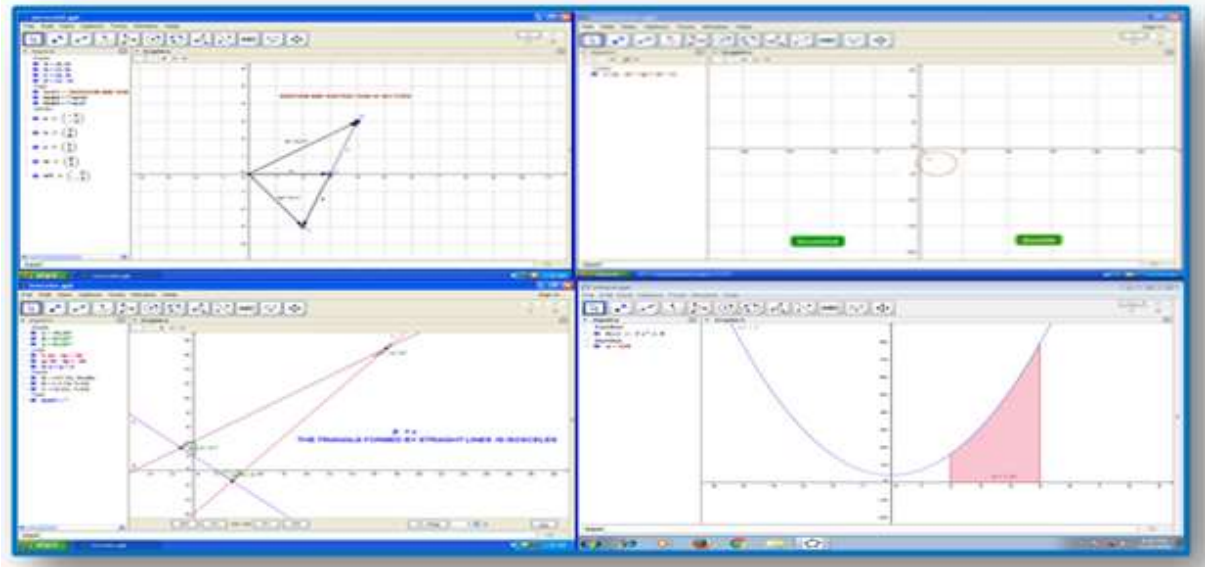

1. Solve by graphically : x+2y=4 : 2x+4y=8

Input

x+2y=4

X	-2	0	2
Y	3	2	1

2x+4y=8

X	-4	0	4
Y	4	2	0

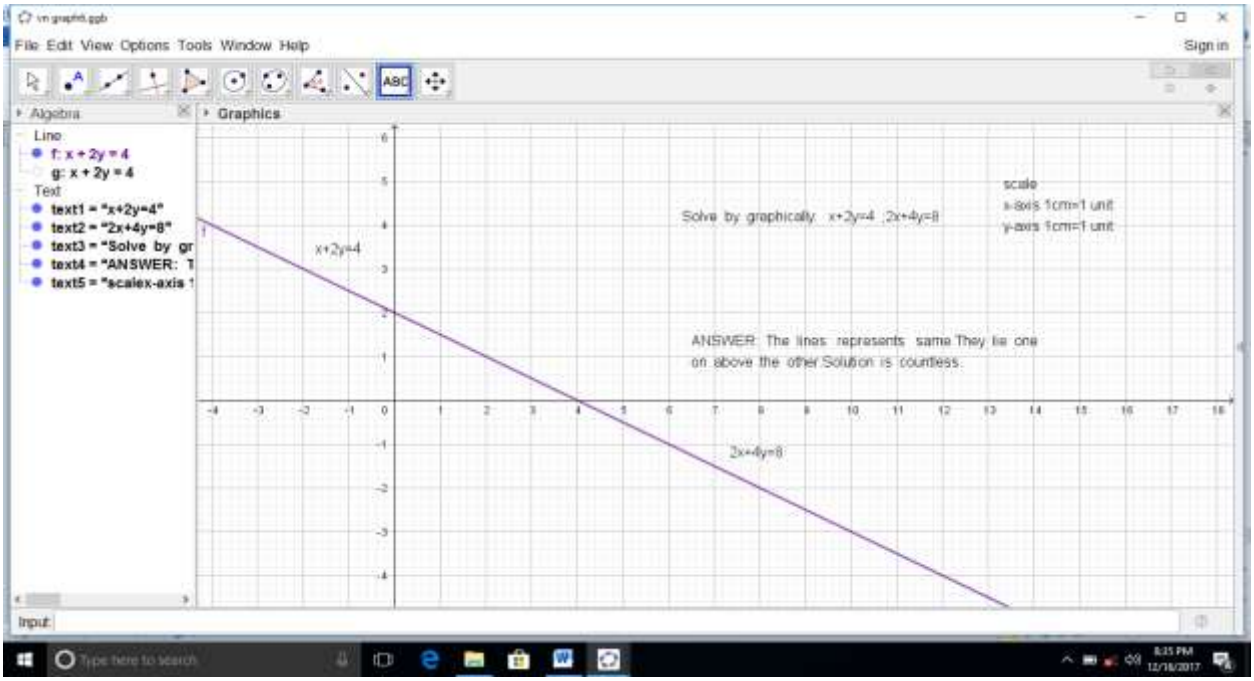

Figure: 1 Graph of same straight lines.

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Answer: The lines represents same straight lines. Solution is Countless.

2. Solve by graphically: x-3y=6 ; x-3y=-9

Input

x-3y =6

X	-3	0	3
Y	-3	-2	-1

x-3y= -9

X	-3	0	3
Y	2	3	4

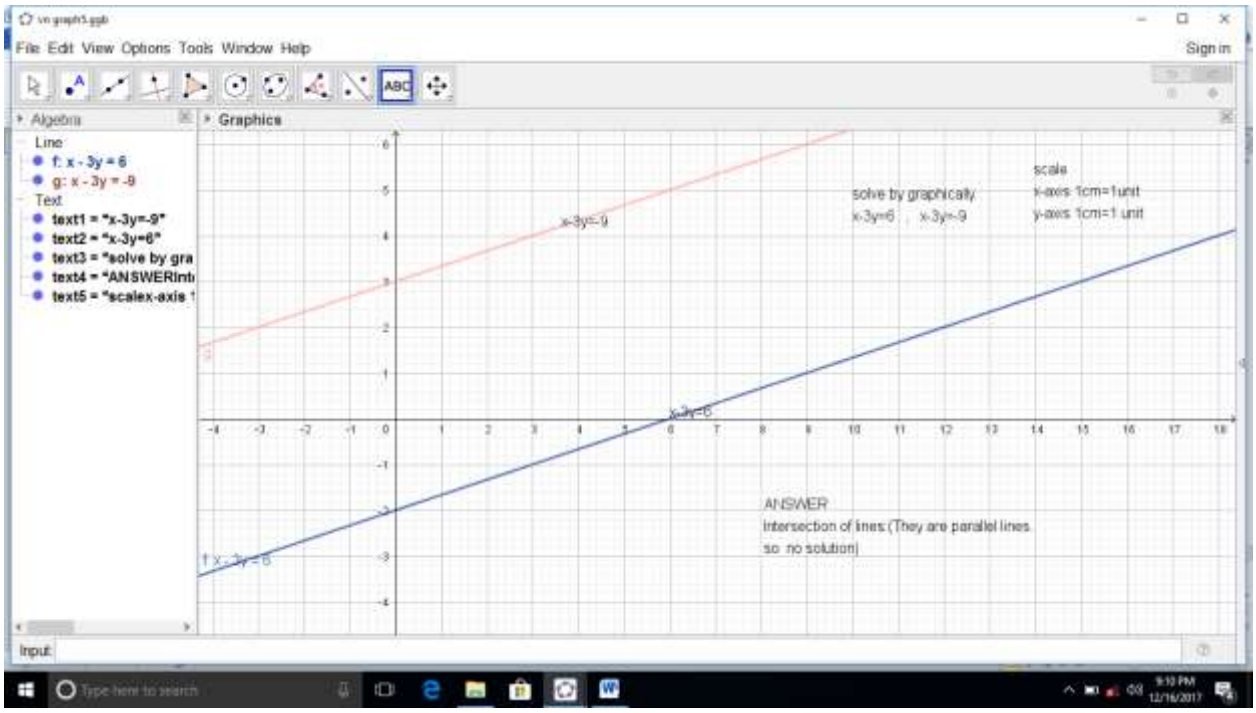

Figure: 2 Graph of parallel lines.

Ans : The straight lines are parallel. So there is no solution.

3. Solve by graphically: 2x-y=1 : x+2y=8

Input

2x-y=1

X	-1	0	1
Y	-3	-1	1

X+2y=8

X	-2	0	2
Y	5	4	3

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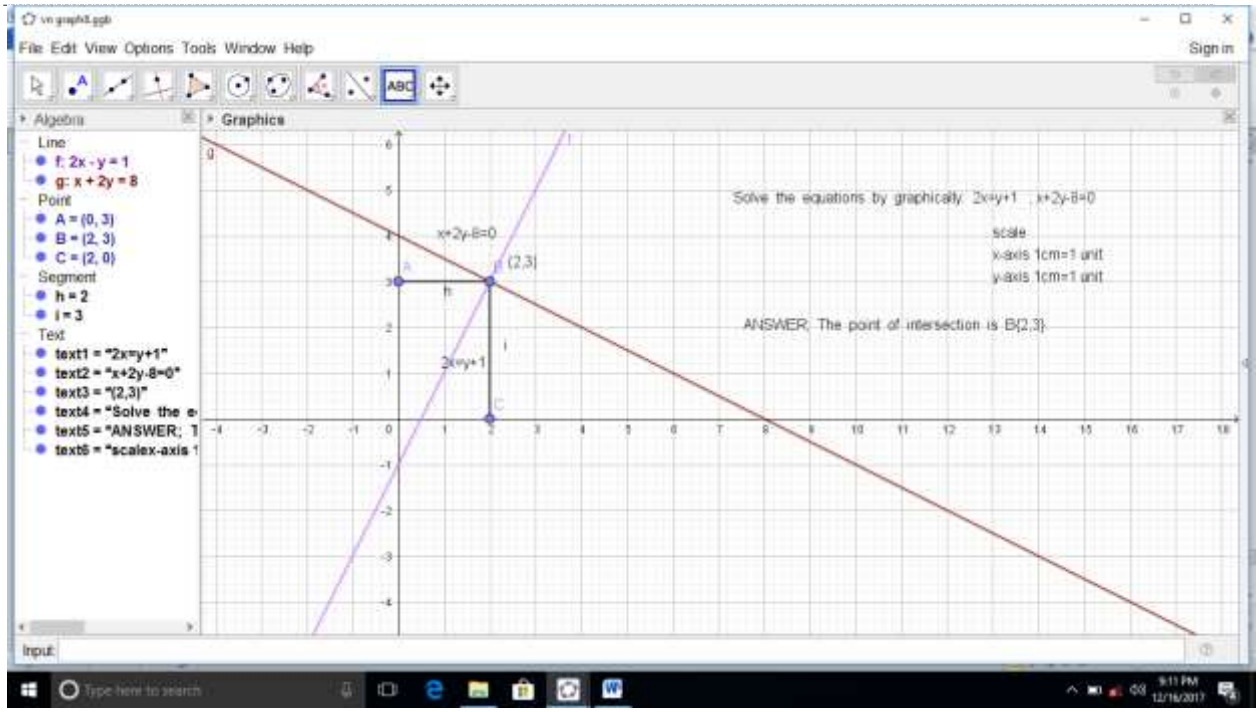

Figure: 3 Graph of intersecting lines

Answer: Point of Intersection is (2,3).
So the only solution is {2,3}.

4. Amudha walks at a speed of 3km/hr. Draw a linear graph to show the relationship between the time and distance.

Input

Time in hours (x)	0	1	2	3	4	5
Distance in km (y)	0	3	6	9	12	15

Plot the points (0,0), (1,3), (2,,6), (3,9), (4,12), (5,15).
Join all the points.

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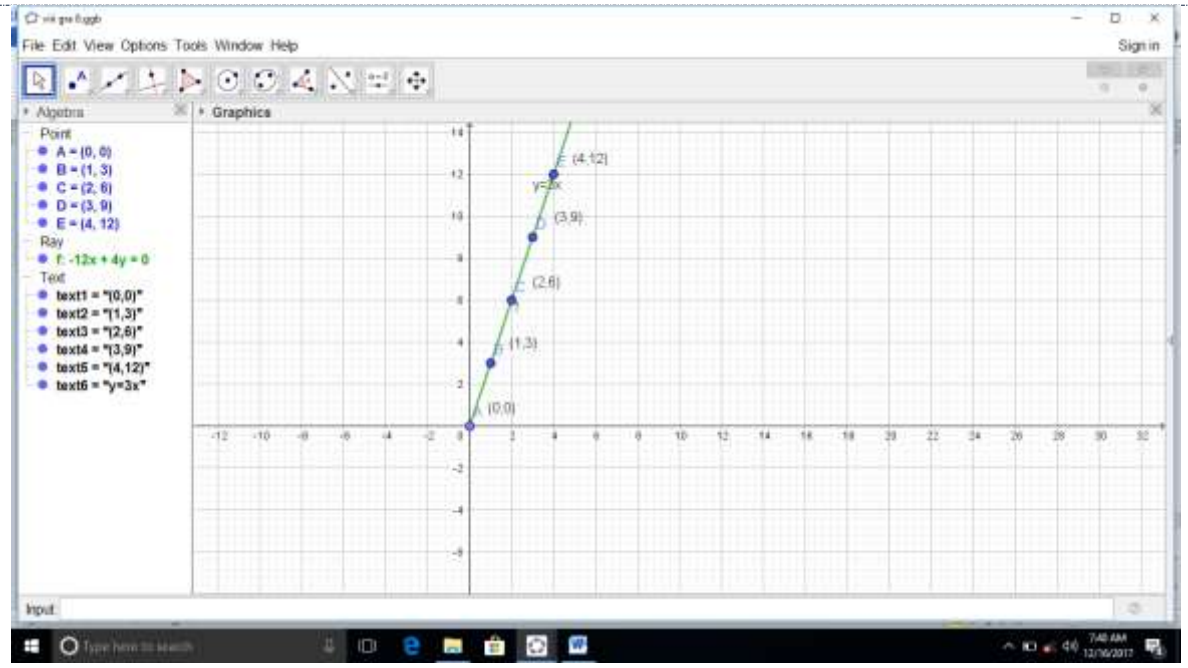

Figure : 4 Linear graph.

Answer:
It is a straight line. Distance=Speed*Time. Relationship is y=3x.

II. CONCLUSION

Accessing to technology is an effective way to stimulate the student's interest in Mathematics. The world's favorite software Geogebra is excellent Mathematical software. It will be an effective tool to change the student's attitude positively towards the learning of mathematics. The youngsters can easily solve mathematical problem with the help of this technology. With the help of this Geogebra the students can explore critical topics like vector algebra; complex numbers. In order to bring the clarity in 3dimensional construction, Geometry, Graph. Geogebra provides the visualization technique. This technique enables the higher secondary students to eliminate memorization of Mathematical concepts in 2 and 3dimensional. Viewing 3-dimension mathematical figure, animating mathematical figure, finding the angle, finding the area, finding the slope helps the students to understand the mathematical concepts clearly. In conventional method, the students can build only the memory palace. But in the case of conventional with ICT the students can view the Mathematics figure visually and easily develop their learning skill.

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