New formulas in area

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(1)Abstract

The use of geometric spaces is very important in our lives In ancient times it was used many steps to resolve the area of the triangle, but this research is easy to solve the area of triangle with one side and two angles, and it saves time and effort and thinking
Old is resolved rhombus area of a difficult steps, but in this research is easily the solution.

rhombus area half the multiplication of the two diagonals, but in the new area of the law in terms of diagonal and angle only
Parallelogram area equal to multiplication the base to rise, but the new method uses diagonal and angles of the diagonal only
Area of the rectangle equal multiplication length and width, new method uses diagonal and angles of the diagonal only
And so easy to answer and

Uses

1- triangle area in a new method
2- parallelogram area a new method
3 - rectangular area in a new method
4 - designated area in a new method
5 - square area in a new method

(2)Keyword

The area ,, Triangle,, rhombus (diamond) ,,Parallelogram,,, rectangle

(3)- ***Materials and Methods***

Use method of conclusion – Results Get new formulas of the areas of the triangle and parallelogram and rhombus and rectangle

(4)Discussion

It has been discussing the international conference of mathematics at the University of Zewail Sources And International Conference of Nanotechnology, Biotechnology and Spectroscopy

(5)Introduction:

Find a the area of a triangle by one side and two angles better than using the first solution Triangle and find a the area of rhombus by diagonal and angle

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rhombus area half the multiplication of the two diagonals, but in the new area with diagonal and angle only Parallelogram area equal to multiplication the base to rise, but the new method uses diagonal and angles of the diagonal only Area of the rectangle equal multiplication length and width, new method uses diagonal and angles of the diagonal only And so easy to answer

(6)Idea of the research **"The new methods"**

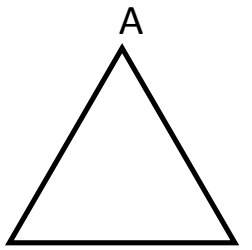
The area of

(1) Triangle **(2) rhombus (diamond)**

(3) Parallelogram **(4) rectangle**

(6---1)The area of triangle

proof



∵ The area of triangle = $\frac{1}{2}$ × (a b)× (a c)× sin ?

∴ $\frac{a\,c}{\sin b} = \frac{a\,b}{\sin c}$ → (1)

∴ ac = (ab) × sin (b) / sin (c) → (2)

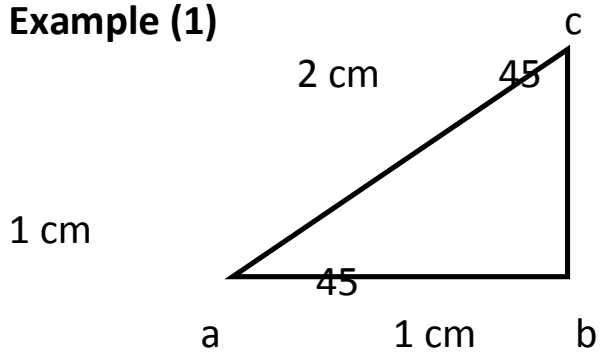
∵ sin c = sin(180- (a + b))

= sin (a + b) → (3)

from (1), (2), (3)

∵ **The area at triangle =** $\frac{\mathbf{1}}{\mathbf{2}}\frac{(\boldsymbol{a}\,\boldsymbol{b})^{\mathbf{2}}\times\mathbf{sin}(\boldsymbol{a})\,\mathbf{sin}(\boldsymbol{b})}{\mathbf{sin}(\,\boldsymbol{a}+\boldsymbol{b}\,)}$

Example (1)



Solution (1)

The Area of triangle abc = $\frac{1}{2}$ a b × b c × sin b

$$= \frac{1}{2} \times 1 \times 1 \times 1 = \frac{1}{2} \text{ cm}^2$$

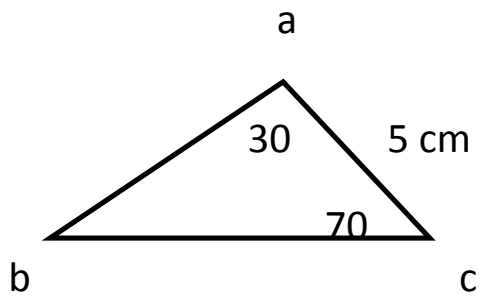
Solution (2) by new method

The Area of triangle abc = $\frac{1}{2} \frac{(a\ b)^2 \times \sin(a) \sin(b)}{\sin(a+b)}$

$$= \frac{1}{2} \frac{(1)^2 \times \sin(45) \sin(90)}{\sin(45+90)}$$

$$= \frac{1}{2} \times \frac{1 \times 1 \times \frac{1}{\sqrt{2}} \times 1}{\frac{1}{\sqrt{2}}} = \frac{1}{2} \text{ cm}^2$$

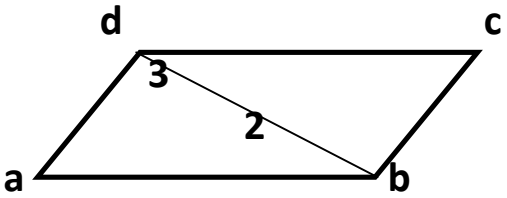
Example (1)



The Area of $\triangle$ abc = $\frac{\frac{1}{2} \times (5)^2 \times \sin(a) \times \sin(c)}{\sin(a+c)}$

$$= \frac{\frac{1}{2} \times 25 \times \sin(30) \times \sin(70)}{\sin(100)} = 5.96 \text{ cm}^2$$

(6---2)The area of parallelogram



The proof

The area of parallelogram a b c d

= 2 × area △ abd

$= \cancel{2} \times \frac{1}{\cancel{2}} \quad \frac{(d\ b)^2 \times \sin(3)\sin(2)}{\sin(\ 2+\ 3\ )}$ ← ١

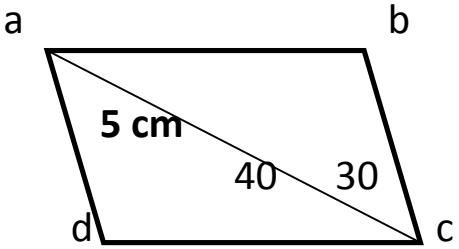
∵ $\overline{ab}$ // $\overline{bc}$

∴ m (3) = m (1) ← ٢

from (1) , (2)

∴ **area a b c d =** $\frac{(d\ b)^2 \times \sin(1)\sin(2)}{\sin(1+2)}$

example (1)

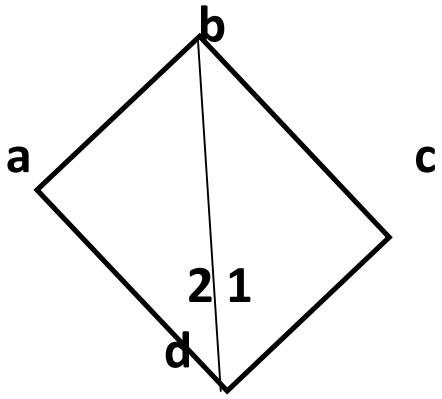


Area of □ a b c d = $\boxed{\frac{(5)^2 \times \sin(30)\sin(40)}{\sin(70)}}$

= 8.55 cm^2

(6--3)The area of rhombus (diamond)

proof



∵ Area of a b c d = $\frac{(bd)^2 \times \sin(1)\sin(2)}{\sin(1+2)}$

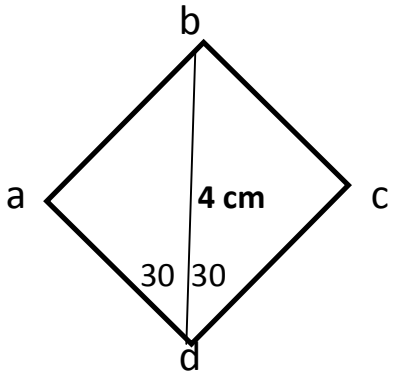
∵ m(1) = m(2) = m($\frac{d}{2}$)

from (1), (2)

∵ **Area of □ a b c d =** $\boxed{\frac{(bd)^2 \times \sin^2(\frac{d}{2})}{\sin(d)}}$

new method

example:

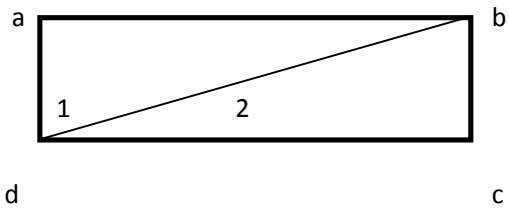


Area of $\square$ a b c d = $\frac{(bd)^2 \times \sin^2(\frac{d}{2})}{\sin(d)}$

$$= \frac{(4)^2 \times \sin^2(30)}{\sin(60)} = \frac{16 \times \frac{1}{2} \times \frac{1}{2}}{\sqrt{3}/2} = \frac{8\sqrt{3}}{3} \text{ cm}^2$$

(6--4)The area of rectangle

proof



$$= \frac{(bd)^2 \times \sin(1)\sin(2)}{\sin(90)} = (bd)^2 \times \sin(2)\cos(2)$$

Because sin(90) = 1

Sin (1) = cos(2) **because 1+2 = 90**

(7)Conclusions and remarks

1- triangle area in a new method
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(8)(Rev.)

Book calculate areas and volumes of geometric shapes(١)

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