Effect on the area of triangle essay sample

Sociology, Social Issues

NameAbstract

We need to find the effect on the area of the triangle if the base is doubled and the height is cut half and another case is if the height remains the same with base doubled . The problem is solved with appropriate examples and logic.

Solution to the problem

A triangle is a three sided polygon with any one of the side can be base but we generally consider the one drawn at the bottom which is used to find the area of the triangle. The height or the altitude of triangle is the perpendicular drawn from the base to the opposite vertex.

The Area of triangle = ½ base x height . This is shown in the following Figure 1

Step 1

Let us suppose the base of the triangle = b and height = h

Step 2

Multiply base by the height first and then the result by ½ we get,

Area(A_1) = ½(b x h) = ½ (bh). Eq(1)

First Case:

Step 1

Now if the base is doubled to 2b the new base= b_1 and height is cut to h/2 the new height= h_1 shown in Figure 2

Step 2

Now putting the values in Eq(1) and Multiplying base and height and the

result with ½

we get

Area(A_2) = ½ (b_1 x h_1)

= ½(2b x h/2)[Since b_1= 2b and h_1= h/2]

= (2bh4)

Step 3

Dividing numerator and denominator by 2 we get

= (bh)/2

= ½ (base x height) = A_1

Therefore, A_2 = A_1

So, we there is no change in area when the base is doubled and height is cut half.

Second case

In this case base is doubled but height remains the same.

Step 1

Base is the same as in first case so b_1 = 2b and new height h_2 = h

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Step 2

Now putting the values in Eq(1) and Multiplying base and height and then with ½

we get

Area(A_3) = ½ (b_1 x h_2)

= ½ (2bx h) [since b_1= 2b and h_2= h]

Step3

Dividing 2 from both numerator and denominator

= (2bh)/2

= (bh)

= ½(bh) x ½ (bh)

Therefore, A_3 =. (A_1 x A_1)

So, this shows that area is doubled if the base is doubled but height remains the same.

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