

Example of geometry questions argumentative essay

[Sociology](#), [Social Issues](#)



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Question 1.

What is the effect on the area of a triangle if the base is doubled and the height is cut in half? What happens to the area, if the base is doubled and the height remains the same?

Now let's assume that we have a triangle with base a and height h . The area of this triangle would be $S = \frac{1}{2} * a * h$. If the base is doubled and the height is cut in half, we will have new base = $2a$ and new height = $h/2$. Therefore, the new area would be $S = \frac{1}{2} * 2a * h/2 = \frac{1}{2} * a * h$. We may conclude that the area of the triangle will not change.

In the second example, if the base is doubled and the height remains the same, we will have new base = $2a$, and height will remain the same = h . The new area would be $S = \frac{1}{2} * 2a * h = a * h$. We may conclude that the area of the new triangle is twice as large as an area of the original triangle.

Generally, we may claim that area of the triangle has a positive linear relationship with height and base of a triangle.

Question 2.

What happens to the circumference of a circle if you double the radius? What happens if you double the diameter? What happens if you triple the radius?

Let's assume that we have a circle with radius r . Its circumference will be $C = 2\pi \cdot r$. If we double the radius, or new radius will be $2r$, and circumference $C = 2\pi \cdot 2r = 4\pi r$. We may conclude that circumference doubles if the radius doubles.

Diameter is always twice as large as the radius, that is $d = 2r$. If we double the diameter, our new diameter will be $2d$, and our new radius will be $2r$. Therefore, the circumference of a circle will be $C = 2\pi \cdot 2r = 4\pi r$. From this example we may also conclude that circumference doubles if we double the diameter.

If we triple the radius, our new radius will be $3r$, and the circumference formula will look like $C = 2\pi \cdot 3r = 6\pi r$. We may conclude that circumference triples if the radius triples. Generally, we may claim that there is a linear positive relationship between the radius and the circumference.

Question 3

What happens to the area of a circle if you double the radius? What happens if you double the diameter? What happens if you triple the radius?

The formula for the area of a circle is $S = \pi r^2$, where S - area, r - radius, $\pi = 3.14$.

Let's assume that we have a circle with a radius r . If we double the radius, the new radius would be $2r$. Substitute new radius into the formula: $S = \pi (2r)^2 = 4\pi r^2$. We may conclude that the area of the circle will quadruple if

we double the radius.

Doubling the diameter is the same as doubling the radius: the new diameter will be $2d$, and new radius will be $2r$. Consequently, area of a new circle will be $S = 4\pi r^2$.

If we triple the radius, the new formula will be $S = \pi(3r)^2 = 9\pi r^2$. We may conclude that the area of the new circle will be 9 times larger than the area of an original circle. Generally, there is an exponential relationship between the area of the circle and its radius.