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TITLE

TO WHAT EXTENT DO YOU AGREE WITH THE CLAIM THAT
“ALL THINGS ARE NUMBERS” (PYTHAGORAS)

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To what extent do you agree with the claim that “all things are numbers” (Pythagoras)?

Answer with reference to the arts and the human sciences.

Introduction:

The argument that everything is numbers, as expressed by Pythagoras, indicates that measurement, patterns, and mathematical relationships can comprehensively explain the world. This appears convincing at first, since numbers are used to tell us a lot about science, technology, and social behaviour.

But, once investigated in the arts and the human sciences, the statement is much more complicated. Numbers are measurable quantities or patterns that may be determined mathematically. Creative areas of the arts include music, painting, literature, and film, which create meaning through emotion, imagination, and personal interpretation. Human sciences include subjects such as psychology, sociology, and economics, which aim to understand human thought, behaviour, and social systems.

The thesis of the whole question is to be able to exhaust the richness of these fields of knowledge through numerical patterns. Aesthetics, symbolism, and emotional influence are not easily quantifiable in the arts. Data and statistics show trends in the human sciences, but the human motivations and cultural forces go beyond numbers.

Numbers assist us in structuring not only the arts but also the human sciences, although I disagree with the suggestion that everything is numbers, as there are many other aspects of human meaning, creativity, and behaviour that cannot be cast in numerical terms.

Human science:

One of the best arguments supporting the view that all things are numbers, as proposed by Pythagoras, is that human sciences rely extensively on quantification and statistical modelling to

generate sound knowledge. Researchers in areas such as psychology, sociology, and economics usually believe that patterns can measure human behaviour. This is an expression of reductionism, in which the complex experience is reduced to measurable variables that can be enumerated, compared, and predicted.

For example, Daniel Kahneman and Amos Tversky, in behavioural economics, model risk-taking decisions by individuals using numerical probability weighting and value functions, as in the Prospect Theory¹. Loss aversion is one of the systematic cognitive biases that researchers can identify through controlled experiments, numerical data, and mathematical models. It substantiates this argument since the process of human decision-making, which is highly personal and emotional, can be explained in terms of numbers. The methodology's approach is based on measurable evidence, which means that numbers are a reliable basis for discovering universal tendencies among people. One would find, however, that the strength of this claim relies on the assumption that numerical data is accurate in terms of human behaviour. This strains the notion that knowledge in the human sciences is not just about measurement but also about interpretation, meaning-making, and culture.

A counterargument is a challenge to the degree to which human behaviour may be turned into numbers. Human experience encompasses many things that cannot be quantified, and trying to quantify them can oversimplify or distort the phenomena under investigation. The human sciences concern conscious, emotional, and contextual agents whose behaviour is not necessarily consistent.

To illustrate, in cross-cultural psychology, numerical data is usually interpreted with a clear cultural bias. A famous example is the World Values Survey, which also aims to measure values

¹ "Prospect Theory – an overview." ScienceDirect Topics, Elsevier, <https://www.sciencedirect.com/topics/neuroscience/prospect-theory>. Accessed 1 Dec. 2025.

such as trust, individualism, and happiness using numerical scales across societies². Although the data are large and statistically sound, the presentation of the findings shows that quantitative measures are insufficient to explain the cultural meaning. The fact that Sweden has a trust score of 60 and Pakistan has a trust score of 30 does not imply that Swedes trust twice as much. The figures must be decoded in the framework of the cultures in terms of the past, religion, and social standards. The numerical results are likely to be deceptive without this interpretative process. This proves that the methodology can not be based on measurement and, therefore, qualitative knowledge is necessary to build valid knowledge claims.

This counterargument is a weak case against this claim by Pythagoras, since it demonstrates that human behaviour cannot be numerically described in all its facets. In the human sciences, information is usually a synthesis of quantitative models and a qualitative understanding. Numbers provide clarity, but they do not give the complete reality of human experience.

When traced back to the title, it is evident that the tension is that human sciences rely on numbers as potent tools, yet these tools cannot be used to characterize all knowledge in the field. Human-science models rely on the ability to acknowledge the weaknesses and strengths of quantification. Thus, the claim that everything is numbers can only be partially justified by this field of science.

Art:

One argument in favor of Pythagoras's view that everything is numbers in the arts is that artistic work is often based on underlying mathematical structures. Although art has a subjective quality, a variety of artistic conventions are consciously grounded in measurable aspects, such as proportion, symmetry, rhythm, and geometry, to generate meaning. This is an approach to the assumption of methodology that mathematical order improves aesthetic experience.

² World Values Survey. "Welcome to the World Values Survey site." World Values Survey, 1981-2025 (latest update), www.worldvaluessurvey.org

As an example, in Western visual art, compositions have been built using the so-called golden ratio. Renaissance painters, such as Leonardo da Vinci, used the ratio to create balanced, harmonious visual works³. Likewise, rhythm, tempo, harmonics, intervals, and so on in music are controlled by quantifiable relations, as seen in time signatures used by Beethoven to modern-day digital music production, which is based on precise numerical frequencies. These examples prove this statement, as they demonstrate that artists deliberately use number patterns as a means to provoke an emotional reaction. According to this perception, numbers do not constrain creativity; they provide a structural foundation on which artists can express ideas more effectively. This is consistent with Pythagoras's views, as the very concept of musical harmony is based on his finding that vibrating strings are in specific ratios. Numbers in this case serve as a universal language that determines artistic knowledge.

Nevertheless, the validity of this argument rests on the premise that art is about structure rather than interpretation. This gives rise to another significant argument: although the systems of numbers can influence artistic craft, the meaning of art cannot be wholly described by numbers. Arts are essentially interpretive, and meaning is built through subjective experience, cultural setting, and emotional response, which cannot be quantified. An artistic knowledge is created through a very personal approach, and intuition, imagination, and symbolism become the most important.

An example in point is abstract expressionism, especially in the paintings of Jackson Pollock⁴. Although it was subsequently alleged that Pollock's drip paintings do bear fractal patterns, they were not designed using numerical rules. His work is worthy and significant not so much because of quantifiable structures, but because of the intensity and interpretive receptiveness

³ Rasouli, Mahan. "The Golden Ratio: A Timeless Tool in Design for Centuries." Mahan Rasouli, 18 May 2025, mahanrasouli.com/the-golden-ratio-a-timeless-tool-in-design/. Accessed 1 Dec. 2025.

⁴ Paul, Stella. "Abstract Expressionism." Heilbrunn Timeline of Art History, The Metropolitan Museum of Art, 2004, www.metmuseum.org/toah/hd/abex/hd_abex.htm. Accessed 1 Dec. 2025.

they provide. It is an interpretational quality, not a numerical one, and it is this aspect that the viewer engages with and, by constructing meaning from what they watch, makes the art meaningful. We do not know why the paintings are chaotic, liberating, or unsettling through the mathematical study of fractal dimensions. This indicates that there is a definite drawback in the numbering of the arts; quantification can feature form, but not content.

This rebuttal would dispute this claim by Pythagoras by demonstrating that artistic knowledge contains subjective, non-quantifiable aspects that cannot be entirely described using quantitative language. The artistic value arises from common human experience, cultural symbolism, and emotion, all of which cannot be described mathematically.

Going back to the title, the arts show that numbers can influence artistic techniques and shape aesthetic choices, but they cannot determine the knowledge that will be generated in this field. Art can only have a meaning when it is interpreted, but not calculated. Thus, in arts where everything is numbers, do not hold, as that concept explains structure but not the human factor that makes art meaningful.

Conclusion:

Arguments that everything is numbers are convincing only to a certain degree. Numbers have significant functions in the arts and in the human sciences in the exposing of order, the discovery of patterns, and the promotion of regular methodologies. Music, visual form, psychological modeling, and tendencies of behaviour are all the objects of mathematical relationships. But even the knowledge generated in these fields cannot be fully translated into numerical values. The arts depend on interpretation, emotion, and cultural meaning, none of which can be measured in isolation.

In the same way, qualitative knowledge is needed by the human sciences to explain human motivation, identity, and context. Quantification can be precise and reliable, yet it can never replace the richness of subjective experience. Thus, although numbers are a strong means of organizing knowledge, they are not what determines the totality of what we know. Their influence is excellent, though not absolute, and consequently, Pythagoras's assertion has some sense but is not complete.

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