

Template

To what extent is certainty necessary for knowledge to be valuable in mathematics and the arts?

Central Knowledge Claim

What is your main position across both Mathematics and The Arts?

Mathematics Claim 1

Direct stance answering the prompt through the lens of Mathematics

Specific Mathematics Example

Name a specific mathematical proof, theorem, system, etc

Analysis

How does this example demonstrate the your point about knowledge production in mathematics

Limitation / Counter-Point

Where does this claim fail or oversimplify? What alternative point of view exists?

Implications

Why does the tension you just explored matter to our understanding of mathematics?

*Direct stance answering the prompt
through the lens of Mathematics*

Name a specific artwork, movement, artist, or literary text

How does this example demonstrate
the your point about knowledge
production in the arts

Where does this claim fail or oversimplify? What alternative point of view exists?

Why does the tension you just explored matter to our understanding of the arts?

Basic Response

To what extent is certainty necessary for knowledge to be valuable in mathematics and the arts?

Central Knowledge Claim

What is your main position across both Mathematics and The Arts?

Certainty is necessary in maths but not in the arts. Both are valuable in different ways.

Mathematics Claim 1

Direct stance answering the prompt through the lens of Mathematics

Maths is certain because it uses proof, which is why it is valuable.

Specific Mathematics Example

Name a specific mathematical proof, theorem, system, etc

For example, in Euclidean geometry, the angles of a triangle add up to 180 degrees.

Analysis

How does this example demonstrate the your point about knowledge production in mathematics

This has been proved, so we can be certain about it. This makes mathematical knowledge very valuable because we can use it in engineering and architecture and be sure that it will work.

Limitation / Counter-Point

Where does this claim fail or oversimplify? What alternative point of view exists?

However, we also learned about non-Euclidean geometry. On a sphere the angles of a triangle add up to more than 180 degrees. This shows that mathematics can change over time. Also, Gödel proved that there are some things mathematics cannot prove. So maybe mathematics is not as certain as people think it is.

Implications

Why does the tension you just explored matter to our understanding of mathematics?

This is important because it shows that mathematics is not perfect and we should not always trust it completely.

The Arts Claim 1

*Direct stance answering the prompt
through the lens of Mathematics*

Specific Arts Example

*Name a specific artwork, movement,
artist, or literary text*

Analysis

*How does this example demonstrate
the your point about knowledge
production in the arts*

Limitation / Counter-Point

*Where does this claim fail or
oversimplify? What alternative point of
view exists?*

Implications

*Why does the tension you just
explored matter to our understanding
of the arts?*

In the arts, certainty is not necessary because art is subjective and everybody has their own opinion

A good example is when we looked at different images of Mount Fuji in class. There was a map, some photographs, a Japanese painting by Hokusai, and a simple drawing. We had to rank them from most to least worthy of being called art. Everybody in the class had a different answer and there was no correct one.

This shows that in the arts there is no certainty, because people disagree about what art is and what it means.

Some people say critics and experts decide, so there are rules and conventions that define what makes art.

There may be disagreement about what makes art, or how much weight should be given to expert opinions, but the most meaningful takeaway is that all are invited to give their interpretations, which is not the case in mathematics.

Strong Response

To what extent is certainty necessary for knowledge to be valuable in mathematics and the arts?

Central Knowledge Claim

What is your main position across both Mathematics and The Arts?

In both areas of knowledge, certainty is not what makes knowledge valuable; what determines value is the position of the knower — whether they are applying settled truths or producing new knowledge.

Mathematics Claim 1

Direct stance answering the prompt through the lens of Mathematics

In mathematics, certainty is conditional on the axioms we choose, but the value of this certainty depends on whether it is being applied or interrogated.

Specific Mathematics Example

Name a specific mathematical proof, theorem, system, etc

For instance, calculating the distance between Størdal and Funafuti using the Pythagorean theorem follows logically from Euclid's axioms, and can be proven with certainty using the parallel postulate.

Analysis

How does this example demonstrate the your point about knowledge production in mathematics

But the shortest path between two points on a sphere is not a straight line. Mathematical certainty, then, only produces value when applied within the right context – when we choose the right set of axioms.

Limitation / Counter-Point

Where does this claim fail or oversimplify? What alternative point of view exists?

However, the previous argument implies that the only value of mathematics comes from its application to reality, which undercuts the work of most professional mathematicians. For those producing mathematical knowledge, certainty provides an incredibly valuable benchmark. The Collatz conjecture, for instance, has never failed in a vast number of brute force tests, but mathematicians still refuse to call it knowledge because it has not been definitively proven. Certainty is the condition on which a claim counts as mathematical knowledge, regardless of how well-supported it already is.

Implications

Why does the tension you just explored matter to our understanding of mathematics?

So, for those acquiring knowledge and looking to apply it, certainty is only a starting point; for those on the frontiers of knowledge production, it is the standard a claim must meet before it counts at all.

The Arts Claim 1

Direct stance answering the prompt through the lens of Mathematics

Specific Arts Example

Name a specific artwork, movement, artist, or literary text

Analysis

How does this example demonstrate the your point about knowledge production in the arts

Limitation / Counter-Point

Where does this claim fail or oversimplify? What alternative point of view exists?

Implications

Why does the tension you just explored matter to our understanding of the arts?

In the arts, uncertainty is not a defect to be resolved but the condition that lets a work accumulate meaning.

For instance, Van Gogh's painting *Café Terrace at Night* is widely viewed as an atmospheric painting. Most critics appreciate how the artist uses color, texture, and light to build mood. But there is one contentious claim from a critic who believes this painting is meant to pay homage to *The Last Supper*. There is nothing certain about this claim; there is no critical consensus and the artist himself never linked his work to Leonardo's. Does this unpopular and uncertain claim hold value?

While the second interpretation is contested, it is still rooted in evidence: Van Gogh's religious upbringing, a long-haired figure in a white tunic surrounded by twelve diners, a cross-shaped window frame, a lantern behind the central figure, and a dark shape leaving through the doorway. These competing interpretations exist simultaneously rather than one superseding the other. A viewer who has seen both interpretations looks at a painting that holds more than it did before.

That is not to say the arts are free of objective truths. A reading unsupported by what is on the canvas is wrong, not merely unpopular. Visual evidence does not settle which interpretation is right, but it rules out the ones that are not interpretations at all.

Most interestingly, the artist is not the deciding voice on establishing a certain meaning – at least to adherents of Roland Barthes, who asserted that audiences are co-creators of meaning. Viewers who interpret are producing knowledge, and they owe an obligation to evidence but not to certainty.