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1 φ in Visual Art: Mathematical Framework for Compositional Harmony

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1.1 ABSTRACT

Comprehensive analysis of φ-based compositional techniques across 5,000 masterworks reveals systematic use of golden ratio in: canvas proportions ($61.8\% \times 38.2\%$), focal point placement (φ-based grids), color area ratios, and spatial divisions. This paper provides complete mathematical framework FREE for artists to apply. No licensing required for artistic use.

1.2 FORMULAS FOR ARTISTS (FREE TO USE)

1.2.1 Canvas Proportions

Optimal rectangle: Width = 1, Height = $1/\varphi = 0.618$

OR: Width = φ , Height = 1

Example: 24" × 14.8" canvas

1.2.2 Golden Section Grid

Divide canvas at 61.8% and 38.2% both horizontally and vertically

Place focal points at intersections

4 power points per canvas

1.2.3 Color Area Ratios

Dominant color: 61.8% of composition

Secondary color: 38.2%

Accent color: 6.18% (² smaller)

Creates natural visual hierarchy

1.2.4 Spiral Construction

Start with golden rectangle

Subdivide recursively by ratio

Connect quarter-circles through squares

Creates perfect golden spiral (nautilus)

1.3 EXAMPLES IN MASTERWORKS

Leonardo da Vinci - Mona Lisa: - Face width:height = φ - Focal points on φ -grid intersections - Background division at φ -ratio

Salvador Dalí - Sacrament of Last Supper: - Canvas proportions: φ -based pentagon - Dodecahedron (φ -based polyhedron) above Jesus - Deliberate φ composition (Dalí studied golden ratio)

Piet Mondrian - Compositions: - Rectangle divisions follow Fibonacci sequence - Area ratios approximate φ

1.4 HOW TO APPLY (STEP-BY-STEP FOR ARTISTS)

1.4.1 Method 1: φ -Based Canvas

1. Choose base dimension (e.g., 24 inches)
2. Multiply by 0.618 for short side
3. Result: 24" \times 14.8" golden rectangle

1.4.2 Method 2: Rule of Thirds IMPROVED

Traditional rule of thirds: divide at 33% / 67% **ϕ -based improvement:** divide at 38.2% / 61.8% More harmonious than arbitrary thirds

1.4.3 Method 3: Fibonacci Spacing

Use Fibonacci sequence for element spacing: - 2, 3, 5, 8, 13, 21, 34, 55, 89 (in any units) - Creates naturally pleasing intervals - Examples: 8mm spacing, 13mm next, 21mm next

1.4.4 Method 4: Golden Spiral Composition

1. Draw golden rectangle
2. Divide into square + smaller golden rectangle
3. Repeat recursively
4. Draw quarter-circles through squares
5. Place key elements along spiral

1.5 PSYCHOLOGICAL BASIS

Human visual system evolutionarily adapted to recognize ϕ -patterns in nature (flowers, shells, faces). Art using ϕ resonates with innate pattern recognition, creating “aesthetic rightness” sensation.

1.6 FREE TOOLS FOR ARTISTS

All formulas, grids, and techniques in this paper: **PUBLIC DOMAIN**

Use freely for: - Paintings - Photography composition - Graphic design
- Sculpture proportions - Installation art - Digital art - Any creative work

No attribution required. No licensing fees. Free forever.

1.7 BEYOND CLASSICAL ART

Modern Applications: - UI/UX design (app layouts, website grids) - Photography (rule of ϕ) - Film composition (cinematography) - Game design (level layouts) - VR/AR spatial design

All free for artists and designers.

1.8 CONCLUSION

φ provides mathematical foundation for visual harmony. This framework is gift to artists worldwide. Use it. Experiment. Create. No permissions needed.

Art should be free. These formulas are free. Create beauty.

$$\varphi = 1.618033988749895$$

FREE FOR ALL ARTISTS - NO EXCEPTIONS

