

Historical Origins of Colors and Shapes

Colors And Shapes · Practice Test · 18 Questions

1. Which pigment, discovered in 1704 by Johann Jacob Diesbach, became the first synthetically produced modern color?

- A) Prussian Blue
- B) Gamboge Yellow
- C) Tyrian Purple
- D) Vermilion

2. In Euclidean geometry, what is the specific name for a polygon with 17 sides, a shape famously proven constructible by Carl Friedrich Gauss in 1796?

- A) Heptadecagon
- B) Enneadecagon
- C) Octadecagon
- D) Pentadecagon

3. Which mineral was historically mined to produce the vibrant pigment known as 'Egyptian Blue', the first synthetic pigment created by humans?

- A) Calcium copper silicate
- B) Cinnabar
- C) Lapis Lazuli
- D) Malachite

4. What shape was formally adopted as the international standard for 'Stop' signs by the Vienna Convention on Road Signs and Signals in 1968?

- A) Octagon
- B) Circle
- C) Triangle
- D) Square

5. The color 'Vantablack', composed of vertically aligned carbon nanotube arrays, was developed in 2014 to absorb what percentage of visible light?

- A) 99.965%
- B) 95.2%
- C) 92.5%
- D) 88.8%

6. Which historical figure identified the seven colors of the visible spectrum (ROYGBIV) to align with the seven musical notes of the diatonic scale?

- A) Isaac Newton
- B) Johannes Kepler
- C) Galileo Galilei
- D) Robert Boyle

7. Before the discovery of synthetic dyes, the expensive purple pigment 'Tyrian purple' was extracted from the mucus of which marine organism?

- A) Sea snails (Murex)
- B) Squid ink
- C) Red coral
- D) Starfish

8. What is the term for a shape with constant width, famously studied by Leonhard Euler, that is not a circle?

- A) Reuleaux triangle
- B) Spherical polygon
- C) Hyperbolic disc
- D) Convex hull

9. The pigment 'Scheele's Green', popular in the 18th century, was found to be highly toxic due to its high content of which element?

- A) Arsenic
- B) Lead
- C) Mercury
- D) Cadmium

10. In the history of flag design, which country was the first to adopt a rectangular flag with three horizontal colored stripes (a tricolour)?

- A) Netherlands
- B) France
- C) Italy
- D) Belgium

11. What mathematical constant, denoted by the Greek letter π , is essential for calculating the area of a circle and was historically approximated by Archimedes?

- A) Ratio of circumference to diameter
- B) Ratio of area to radius
- C) Ratio of volume to surface
- D) Ratio of diagonal to side

12. The 'Golden Rectangle', historically utilized in the Parthenon, is defined by a ratio of sides equal to what?

- A) The Golden Ratio (phi)
- B) The Square root of 2
- C) The ratio of 3:4
- D) The ratio of 1:1

13. Which synthetic red pigment, created in 1868, replaced the traditional madder root extract, fundamentally changing the textile industry?

- A) Alizarin Crimson
- B) Cadmium Red
- C) Cinnabar
- D) Iron Oxide

14. Historically, the 'pentagram' was used as a symbol of health and mathematical perfection by followers of which ancient philosopher?

- A) Pythagoras
- B) Plato
- C) Socrates
- D) Aristotle

15. What is the geometric name for the shape of the Sydney Opera House's 'sails', which are segments of the same sphere?

- A) Spherical triangles
- B) Paraboloids
- C) Hyperboloids
- D) Catenoids

16. The color 'Gamboge', a deep saffron yellow, was historically imported to Europe from which region?

- A) Southeast Asia
- B) The Americas
- C) North Africa
- D) Scandinavia

17. Which 19th-century chemist invented the first synthetic aniline dye, 'Mauveine', in 1856 while attempting to create an antimalarial drug?

- A) William Henry Perkin
- B) Louis Pasteur
- C) August Kekulé
- D) Dmitri Mendeleev

18. What is the name of the geometric solid formed by joining 20 equilateral triangles, which Plato associated with the element of water?

- A) Icosahedron
- B) Dodecahedron
- C) Tetrahedron
- D) Octahedron