Fundamentals of Optics

Optics · Answer Key · 12 Questions

1. In what year did Willebrord Snellius formulate the law of refraction, now known as Snell's Law?

A) 1621
B) 1645
C) 1590
D) 1702

2. Approximately how many meters per second is the speed of light in a vacuum?

A) 300,000,000
B) 150,000,000
C) 500,000,000
D) 200,000,000

3. Who is credited with the publication of the seminal book 'Opticks' in 1704?

A) Isaac Newton
B) Galileo Galilei
C) Albert Einstein
D) Johannes Kepler

4. How many primary colors are traditionally associated with the additive color model in optics (RGB)?

A) 3
B) 2
C) 4
D) 5

5. In which century did Ibn al-Haytham write the 'Book of Optics', which fundamentally changed the understanding of vision?

A) 11th century
B) 9th century
C) 13th century
D) 15th century

6. What is the approximate wavelength range of visible light in nanometers?

A) 380-750 nm
B) 100-200 nm
C) 900-1200 nm
D) 50-100 nm

7. How many laws of reflection govern the behavior of light hitting a smooth surface?

A) 2
B) 1
C) 3
D) 4

8. The year 1676 marked the first successful measurement of the speed of light by which Danish astronomer?

A) Ole Rømer
B) Tycho Brahe
C) Christian Huygens
D) Nicolaus Copernicus

9. A standard lens diopter is the reciprocal of the focal length measured in what unit?

A) Meters
B) Centimeters
C) Millimeters
D) Inches

10. How many types of cones are typically present in the human retina for color vision?

A) 3
B) 2
C) 4
D) 5

11. In the year 1801, which scientist performed the famous double-slit experiment to demonstrate the wave nature of light?

A) Thomas Young
B) James Clerk Maxwell
C) Augustin-Jean Fresnel
D) Michael Faraday

12. What is the refractive index of a vacuum, defined as an exact number?

A) 1.0
B) 1.5
C) 1.3
D) 2.0