

Wave Optics



Here are 30 fill-in-the-blank statements derived from the concepts of "Introduction" and "Huygens' Principle" in wave optics.

Fill in the Blanks

1. The _____ model of light was proposed by Descartes in 1637 to explain reflection and refraction.
2. _____ further developed the corpuscular model of light, which later became popular.
3. _____ was the scientist who, in 1678, proposed the wave theory of light.
4. The wave model could explain _____ and _____ phenomena of light.
5. According to the wave model, when light bends towards the normal, its speed _____ in the second medium.
6. Experiments by _____ in 1850 confirmed that light travels slower in water than in air.
7. _____'s experiment in 1801 provided firm evidence that light behaves as a wave.
8. The wavelength of yellow light is approximately _____ micrometers.
9. The field of _____ optics assumes that light travels in straight lines.
10. In _____ optics, light's wavelength is considered negligible.
11. The phenomenon of light bending around small obstacles is explained by _____ theory.
12. _____ principle states that every point on a wavefront is a source of secondary wavelets.
13. The secondary wavelets in Huygens' principle spread out in _____ directions.
14. A _____ is a locus of points oscillating in phase in a wave.
15. The speed at which a wavefront moves is called the _____ of the wave.
16. In a _____ wavefront, energy moves perpendicularly to the wavefront.
17. The locus of points with the same amplitude and phase forms a _____ wave.
18. When the light source is at a considerable distance, the wavefront is approximately _____.
19. Huygens' principle is used to derive the laws of _____ and _____.
20. A _____ source emits light waves uniformly in all directions, forming spherical wavefronts.
21. The absence of the _____ wave in Huygens' model is explained by the amplitude being zero in the backward direction.
22. _____ is the phenomenon of light waves adding up or canceling out when they meet.
23. If two light sources emit light with constant phase difference and same frequency, they are _____ sources.
24. According to Huygens, the forward envelope of secondary waves gives the new position of the _____.
25. The wave model could not initially explain how light propagates in _____, a mediumless space.
26. The _____ experiment demonstrated light interference and established wave behavior.
27. Huygens principle also explains light _____ as it moves through a medium.
28. Light is an _____ wave consisting of oscillating electric and magnetic fields.
29. Maxwell's equations predict the propagation of light as _____ waves.
30. The _____ angle is the critical angle at which the refracted and reflected rays make a right angle.

