Name _____ **Date** _____
Teacher _____ **Period** _____

Physics - "Application of Reflected and Refracted Light" Notes

If an object is transparent, how do we know it's there?

- _____
- _____
- _____

Reflection

Law of Reflection _____
_____

Two Types of Reflection

- _____
- _____

Does the law of reflection hold true for both types of reflection? _____

Where should you aim?

You want to shine a laser in the corner of the fish tank. Where should you aim the laser?

_____ directly at the corner of the tank
_____ above the corner, on the side of the tank
_____ below the corner, along the bottom of the tank

Total Internal Reflection

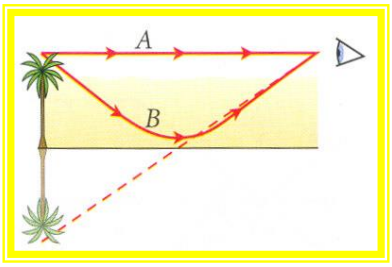
- The complete reflection of light at the boundary of two transparent media; the effect occurs when the angle exceeds the _____.
- Only occurs when light is traveling from a _____ medium to a _____ medium.
- Theory behind _____
- This only occurs when _____
  _____
- The critical angle is _____
  _____

Equation: $\sin\theta_c =$

Sample 1

Find the critical angle for a water-air boundary if the index of refraction of water is 1.33.

Refraction and Mirages



- A mirage can be observed when the ground is so hot that the air directly above is warmer than the air at higher elevations.
- This causes the air to have different densities and therefore different indices of refraction.
- The light _____ back up towards the eye.

Dispersion

- The process of separating polychromatic (consisting of more than one color) light into its component wavelengths.
- The amount of dispersion depends on the _____.
- The index of refraction _____ with increasing wavelength.
- Shorter wavelengths (violet) bend _____ than longer (red) wavelengths.

Rainbows

- What causes rainbows to form?
  - _____
  - _____