

Light and Optical Systems - Section 2.0 – Quiz

Light behaves in predictable ways.

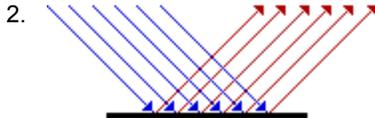
Student Name _____

Class _____

2.1 Light Travels in Rays and Interacts With Materials

1. When light travels, it does so in straight lines. What creates a shadow?

- A. The absence of a light source
- B. The absence of light
- C. The reflection of light
- D. The refraction of light



This illustration demonstrates how light travels and is referred to as a ...

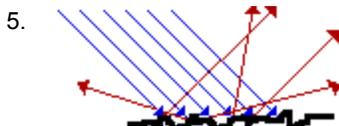
- A. light sketch
- B. light diagram
- C. ray sketch
- D. ray diagram

3. When light interacts with a substance, different things can happen to the light because of the type of material it is made of. Opaque materials do this to light ...

- A. reflect
- B. transmit
- C. block
- D. diffuse

4. When a light bulb in a lamp receives electrical energy, it will produce light. The term that that is used to indicate that the light source produces light is ...

- A. brilliant
- B. electricity
- C. luminous
- D. intensity



This illustration demonstrates a type of reflection referred to as ...

- A. regular
- B. crooked
- C. diffuse
- D. spectacular

2.2 The Law of Reflection

6. Reflection is the process in which light strikes a surface and bounces off that surface. The reflected ray will bounce back directly to the light source if it is lined up with the ...

- A. incident ray
- B. reflected ray
- C. normal line
- D. reflecting surface

7. To discover the laws of reflection it is necessary to use a ...
- A. ray box
 - B. plane mirror**
 - C. reflective material
 - D. normal line
8. In stating the law of reflection, that *the angle of incidence equals the angle of reflection* it is necessary to understand that this is a law because ...
- A. a scientist has stated it
 - B. this relationship happens most of the time
 - C. this relationship always happens**
 - D. science is always accurate and precise
9. When you attempt to focus an image on a screen, using a concave mirror, but cannot, yet, you can see an image when are looking into the same concave mirror, the image is called a ...
- A. convex distortion
 - B. concave image
 - C. virtual image**
 - D. reflected distortion

2.3 Reflecting Light with Curved Mirrors

10.



Funhouse mirrors distort the image you are looking at.
The only practical purpose for mirrors of this type is for entertainment purposes

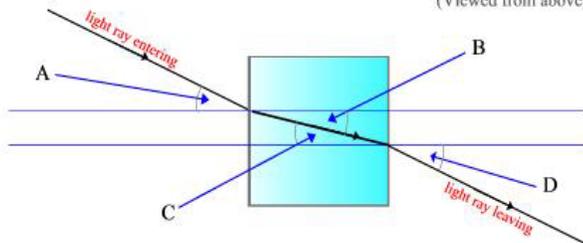
A mirror curved outward only once however, can have many practical applications and is called a ...

- A. bubble mirror
 - B. convex mirror**
 - C. concave mirror
 - D. plane mirror
11. When parallel rays of light hit the surface of this type of mirror, they are reflected back to a focal point in front of the mirror. The type of mirror that does this is called a ...
- A. bubble mirror
 - B. convex mirror
 - C. concave mirror**
 - D. plane mirror
12. Cosmetic mirrors, flashlights, reflecting telescopes, and the headlights in a car are all examples of practical applications for these type mirrors ...
- A. bubble mirror
 - B. convex mirror
 - C. concave mirror**
 - D. plane mirror
13. If an object is placed far away from the focal point in a concave mirror, it will appear ...
- A. Upright and smaller
 - B. Upright and larger
 - C. Inverted and smaller**
 - D. Inverted and larger
14. If an object is placed between the focal point in a concave mirror and the mirror itself, the image will appear ...
- A. Upright and smaller
 - B. Upright and larger**
 - C. Inverted and smaller
 - D. Inverted and larger

2.4 Transparent Substances Refract light

15. Refraction is the bending of light when it travels from one medium to another. What direction does the light bend when it travels from a medium of greater density to one of lesser density?
- A. along the normal
 - B. along the perpendicular
 - C. towards the normal
 - D. away from the normal
16. When light is refracted, the angle of incidence increases and the angle of refraction ...
- A. depends on the intensity of the light
 - B. increases, depending on the material
 - C. decreases, but only by one half
 - D. increases by double
17. Mirages cause an illusion of a watery surface. This illusion is actually ...
- A. water drops reflecting the light
 - B. water drops refracting the light
 - C. the sky refracted by warm air
 - D. the sky reflected by warm air
18. When light strikes a surface and is absorbed, the light ...
- A. changes into another form of energy
 - B. bounces off in many different directions
 - C. travels through it in a different direction
 - D. happens only when it is a smooth shiny surface
19. During refraction, when the angle of incidence is doubled, the angle of refraction is ...
- A. also doubled
 - B. not necessarily doubled
 - C. decreased by the same amount
 - D. decreased by about half

20. Label the angles produced when a light ray goes through a refraction tank.
(Viewed from above)



A is the angle of

B is the angle of

C is the angle of

D is the angle of

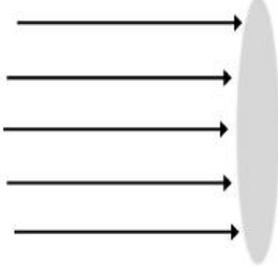
2.5 Lenses Refract and Focus Light

21. When light passes through a lens the light is bent causing the rays of light to diverge. The type of lens is a ...
- A. convex lens
 - B. concave lens
 - C. optic lens
 - D. diamond prism lens
22. When light rays pass through a convex, lens the image that is formed is ...
- A. diverted
 - B. converted
 - C. inverted
 - D. implied

23 Light passes through a lens and is refracted. Different lenses refract light differently. Complete the following illustrations and sentences (following each question) as directed.

Activity 1 (3 points)

Draw what happens to the light rays going through this lens.



What type of lens is it? **It is a** _____ **lens.**

What happens to the light rays? **They are** _____ .