Reflection & Light Review

1. Define and/or illustrate the following:
2. Ray
3. Wavefront
4. Plane wave
5. Spherical wave
6. Specular reflection
7. Diffuse reflection
8. Plane mirror
9. Incident ray
10. Normal line
11. Reflected ray
12. Angle of reflection
13. Angle of incidence
14. Law of reflection
15. Virtual image
16. Real image
17. Spherical mirror
18. Parabolic mirror
19. Concave mirror
20. Convex mirror
21. Image point
22. Principle axis
23. Paraxial ray
24. Focal point
25. Center of curvature
26. Spherical aberration
27. Ray tracing
28. When light strikes an object, it can do one of three things:


32. Which one of these allows us to see objects around us?
33. What are the four properties that we evaluate an image for?



38. An image formed by a plane mirror always has the following properties:
39. Draw a ray hitting a plane mirror and being reflected where the angle of incidence is 35˚. Label the mirror, the normal, the angle of incidence, the angle of reflection, the ray of incidence and the ray of reflection.
40. Describe the similarities and differences between the focal point in concave and convex mirrors
41. What is the process for ray tracing in concave mirrors?  
      
    First ray:  
      
    Second ray:  
      
    Third ray:
42. What is the process for ray tracing in convex mirrors?   
      
    First ray:  
      
    Second ray:  
      
    Third ray:
43. Create a ray diagram for the following scenarios:

   
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  


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1. Use the mirror & magnification equations to solve the following problems (remember, the focal length of a convex mirror is *negative*):

1. Bobby places a 4.25-cm tall light bulb a distance of 36.2 cm from a concave mirror. If the mirror has a focal length of 19.2 cm then what is the image height and image distance?

2. Van Itee, quite concerned about the pimple on his chin, is looking into a concave mirror with a focal length of 33.6 cm. Determine the image height and image distance of the 2.50-mm sized pimple when placed 25.2 cm from the mirror.

3. Al Ways curious is intrigued by the reflective abilities of his family's soup ladle. The ladle acts as a concave mirror with a 2.59-cm focal length. Determine the image size of Al's 24.8-cm tall face when placed 12.8 cm from the ladle's surface. What is the magnification?

4. Mr. H splurged when he bought his Kia and ordered the side mirror option. The mirror has a focal length of -88.4 cm. What is the image height of a 4.59-meter tall truck when located 12.6 meters away from the mirror?

5. A Christmas tree ornament with an 8.64-cm diameter serves as a convex mirror surface. Determine the image size and the image distance of a 1.2 m tall child standing a distance of 2.65 meters away. What type of image is formed?