

Review: Ray model of light

Name: *key*
 Date:
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1. State the law of reflection

angle of incidence = angle of reflection

2. What is the difference between reflection and refraction?

reflection - light rays bounce off an object

refraction - light rays bend as they pass through the new material.

3. Complete the following table:

Type of material	Description of what happens to the rays
Transparent	<i>The rays pass through the material</i>
Translucent	<i>the rays are scattered in all directions (only a few rays can pass through)</i>
Opaque	<i>the rays are all absorbed or reflected by the material.</i>

4. Determine whether each of the following is transparent, translucent or opaque

a) Teeth *opaque*

b) Skin *translucent*

c) Finger nails *translucent*

d) The lens of your eye *transparent*

5. What happens to the size of the shadow when the object is placed closer to a light source? Explain.

the shadow is bigger because it blocks more rays coming from the light source.

6. What happens when light passes from air to water?

the light is refracted. The light will be refracted towards normal because the water is denser than the air

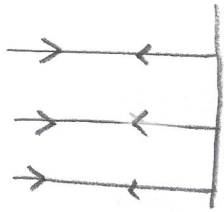
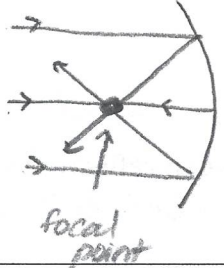
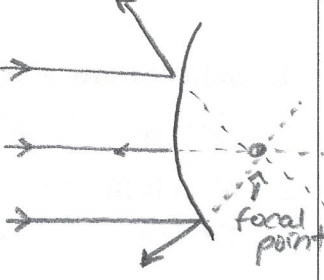
7. What are the three types of mirrors

a) *plain mirror*

b) *convex mirror*

c) *concave mirror*

8. Draw three ^{rays} mirrors that are reflected by the following mirrors.

Plain Mirror	Concave Mirror	Convex Mirror
		

9. Which type of mirror converges light rays?

Concave mirror

10. Which type of mirror diverges light rays?

Convex mirror

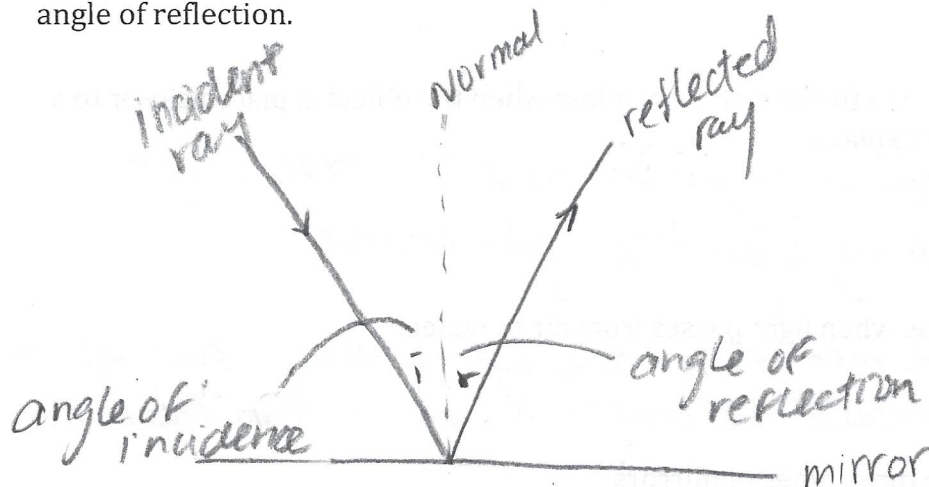
11. When an object moves closer to a **convex mirror**, what happens to the size and orientation of the image?

Smaller and upright

12. When an object moves closer to a **concave mirror**, what happens to the size and orientation of the image?

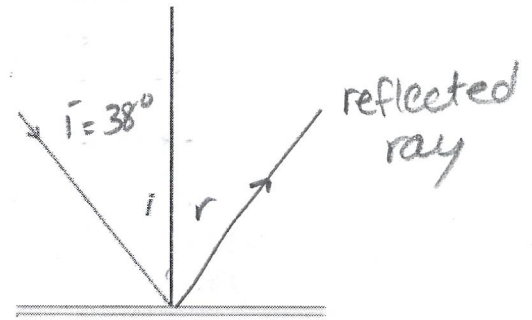
larger and upright

13. Draw a diagram of a light ray that is reflected by the surface of a plain mirror. Label the mirror, normal, incident ray, reflected ray, angle of incidence, and angle of reflection.

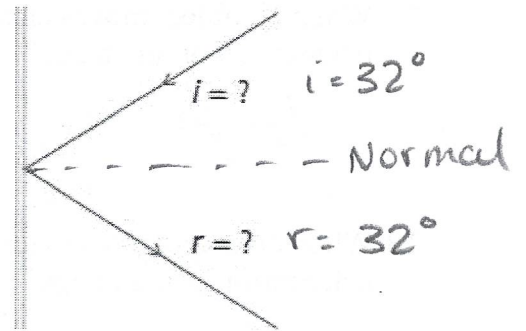


14. Use a protractor to complete the following questions

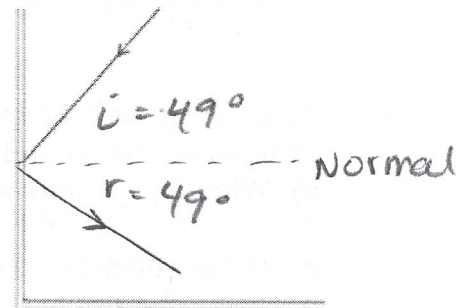
- a) Draw the reflected ray. Measure the angle of reflection.



- b) Draw the normal. Measure the angle of incidence and angle of reflection.

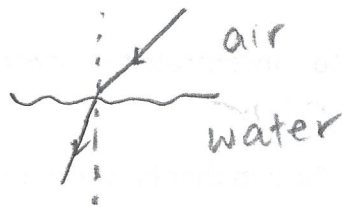


- c) Draw the normal and the reflected ray. Measure the angle of incidence and angle of reflection.

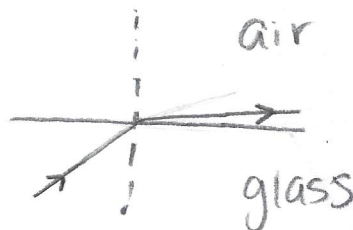


15. Draw a diagram to show the change of direction (towards the normal or away from the normal) of a ray of light:

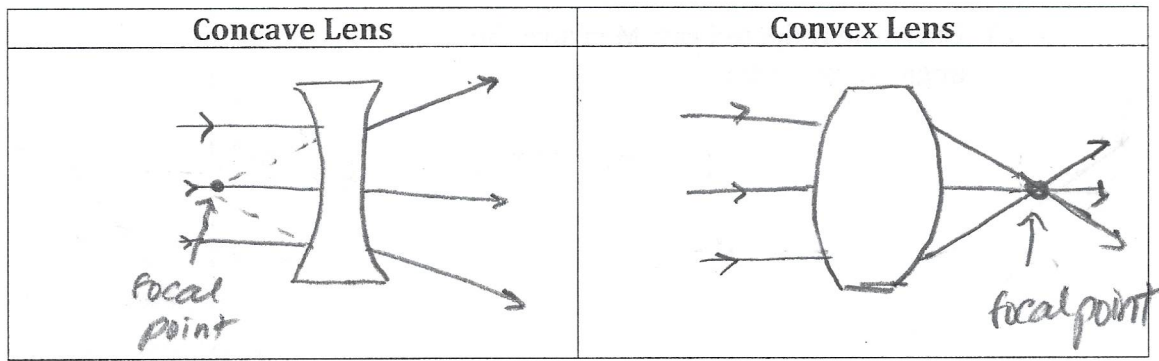
- a) When it pass from air to water



- b) When it pass from glass to air



16. Draw three rays that are refracted by the following lenses:



17. When an object moves closer to a **convex lens**, what happens to the size and orientation of the image?

larger and upright

18. When an object moves closer to a **concave lens**, what happens to the size and orientation of the image?

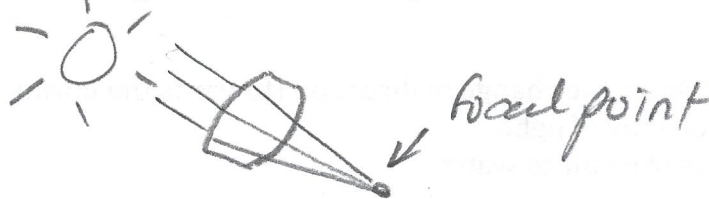
Smaller and upright

19. A magnifying glass contains a lens that can focus the light from the sun on a single point on the ground.

a) What type of **lens** would be used to do this?

Convex lens

b) Draw a diagram to show the rays of the sun that hit this lens.



c) What type of **mirror** could be used to concentrate the rays of the sun?

Concave mirror

d) Draw a diagram to show the rays of the sun that hit this mirror.

