LENSES

Page 346

1. What is a lens?

a thin piece of glass or plastic that has at least one curved side

2. What is a converging lens?

a lens that makes parallel light rays come together

3. What is a diverging lens?

a lens that makes parallel light rays move apart

4. What are two factors determine the extent to which the rays converge or diverge?

- the material that the lens is made of
- the shape of the lens

5. Draw Figure 4.43
    a. A is a converging lens
    b. B is a diverging lens

6. Since light can pass through a lens in both directions how many focal points do lenses have?

a lens has two focal points—one on each side of the lens

Page 347

7. What are the three rules for drawing ray diagrams?

- Any ray that enters the lens parallel to the principal axis will pass through the focal point on the other side of the lens.
- Any ray that travels through the centre of the lens will keep travelling in the same direction
- Any ray that enters the lens from the focal point will leave the lens parallel to the principal axis.

8. Why does the ray passing through the centre of the lens not change direction?

Near the principal axis, the lens is nearly flat on both sides

Light rays refract by the same amount on both sides. Rays that enter parallel will leave parallel.

Page 348

9. Draw a ray diagram for an object placed beyond the focal point of a converging lens

10. Draw a ray diagram for an object placed between the focal point and the lens

LENSES

Page 346

1. What is a lens?

2. What is a converging lens?

3. What is a diverging lens?

4. What are two factors determine the extent to which the rays converge or diverge?

5. Draw Figure 4.43
    a. A is a converging lens
    b. B is a diverging lens

6. Since light can pass through a lens in both directions how many focal points do lenses have?

Page 347

7. What are the three rules for drawing ray diagrams?

8. Why does the ray passing through the centre of the lens not change direction?

(turn page over)

Page 348

9. Draw a ray diagram for an object placed beyond the focal point of a converging lens

Page 351

10. Draw a ray diagram for an object placed between the focal point and the lens