**Determining Characteristics of Images Formed by Lenses**

**Two ways:** Using ***ray diagrams*** (like in 13.3) or Using ***algebra***!!!

1. A diverging lens has a focal length of 10 cm. A candle is located 36 cm from the lens. What type of image will be formed and where will it be located?

2. A converging lens has a focal length of 34 cm. A real image is located 45 cm from the lens. Where is the object located?

3. An object of height 14 cm is placed in front of a converging lens. An inverted, real image is formed with a height of 30 cm on the other side of the lens. What is the magnification of the lens?

4. An object is placed 9.7 cm in front of a converging lens. An upright, virtual image of magnification 4.5 is noticed. Where is the image located?

5. An object with a height of 2 cm is placed 12 cm from a thin converging lens that has a focal length of 5 cm. Determine:

a) the distance of the image from the lens.

b) the height of the image.

c) the attitude & kind of image.

6. An object with a height of 4 cm is placed 8 cm from a diverging lens with a focal length of 10 cm.

Determine:

a) the distance of the image from the lens.

b) the height of the image.

c) the attitude & kind of image.

1. A diverging lens has a focal length of 29 cm. A virtual image of a marble is located in front of the lens. Where is the marble located?
2. A coin of height 2.4 cm is placed in front of a diverging lens. An upright, virtual image of height 1.7 cm is noticed on the same side of the lens as the coin. What is the magnification of the lens?
3. A small toy building block is placed 7.2 cm in front of a lens. An upright, virtual image of magnification 3.2 is noticed. Where is the image located?
4. A toy of height 8.4 cm is balanced in front of a converging lens. An inverted, real image of height 23 cm is noticed on the other side of the lens. What is the magnification of the lens?

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