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**Physics**

**Lens Equation Worksheet**

1. An object is placed 32 cm from a converging (convex) lens that has a focal length of 8 cm.

 a. Determine the image location. (Answer: 10.67 cm)

 b. If the object is 3 cm high, how high is the image? (Answer: -1 cm)

 c. Is the image real or virtual?

 d. Is the image inverted or upright?

2. A convex (converging) lens with a focal length of 6 cm is held 4 cm from an insect that is 0.5 cm tall.

 a. Determine the image location. (Answer: -12 cm)

 b. How large does the insect appear to be? (Answer: 1.5 cm)

 c. Is the image real or virtual?

 d. Is the image inverted or upright?

3. A converging lens with a focal length of 10 cm is used to adjust image size in a photocopy machine. A piece of paper is placed 15 cm away from the lens.

 a. Determine the magnification of the image. (Answer: -2)

 b. Is the image real or virtual? Upright or inverted?

4. A diverging lens with a focal length of 5 cm is placed 25 cm away from an 8 cm tall object.

 a. Determine the location of the image. (Answer: -4.167 cm)

 b. Determine the height of the image. (Answer: 1.333 cm)

 c. Is the image real or virtual?

 d. Is the image inverted or upright?

5. A 4 cm tall object is placed 4 cm in front of a diverging lens with focal length 10 cm.

 a. Determine the location of the image. (Answer: -2.86 cm)

 b. Determine the height of the image. (Answer: 2.86 cm)

 c. Is the image real or virtual?

 d. Is the image upright or inverted?

6. A diverging lens with focal length 15 cm is creating an image. The object that created the image is 20 cm away from the lens.

 a. Determine the magnification of the image. (Answer: 0.429)

 b. Is the image real or virtual? Upright or inverted? Larger or smaller than the object?