

**Science 8**  
**Unit 3: OPTICS**  
**Topic 7: Reflection In A Plane Mirror**



Student Name: \_\_\_\_\_

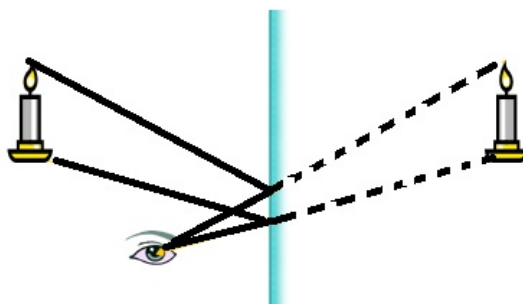
- All mirrors reflect light according to the law of reflection
- A flat smooth mirror is called a plane mirror
- Examples of plane mirrors:
  - Bathroom mirrors
  - Rear view mirrors
  - Dentist mirror for looking at teeth
  - Periscopes

**Image Properties:**

1. S – size(Larger or Smaller than object)
2. P – position (Closer or Further away from mirror or optical centre)
3. O – orientation (upright or inverted)
4. T – type (Real or Virtual)

**Plane Mirror:** refers to flat mirrors

How do we see images in mirrors?



- Light reflected off the mirror converges to form an image in the eye.
- The eye perceives light rays as if they came through the mirror. Imaginary light rays extended behind mirrors are called sight lines.
- The image is virtual since it is formed by imaginary sight lines, not real light rays.

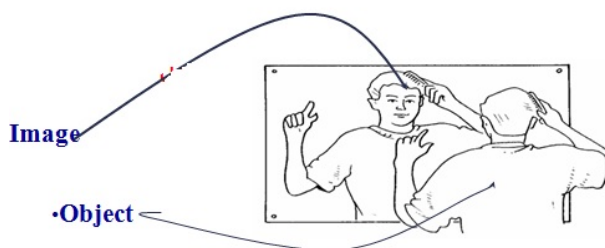
Characteristics of images using plane mirrors:

Image size is equal to object size

Image distance is equal to object distance

The image is upright

The image is virtual



Doing problems involving plane mirrors is actually pretty easy since we only have to remember a few things:

1. The image will be the same size as the original object.
2. The image will appear as far behind the mirror as the object is in front of the mirror.
3. The Law of Reflection. Any light beam that hits the mirror will bounce off at exactly the same angle. We assume the mirror is perfectly flat in these situations. We will have to make sure that the light rays reflected off the mirror do so at an angle that makes them hit the observer's eye.

**PART A: MULTIPLE CHOICE.**

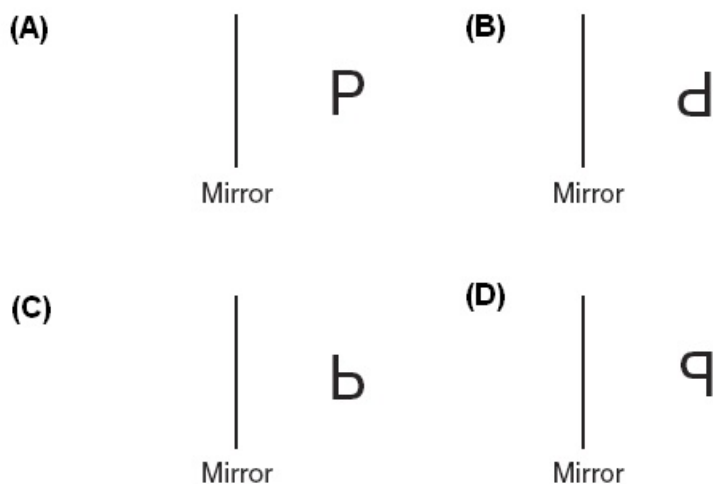
Instruction: Circle the correct answer below each question. Also, transfer your answers to the bubble sheet provided.

1. What is another name for a plane mirror?  
(A) Flat Mirror  
(B) Specular Mirror  
(C) Diffuse mirror  
(D) Regular Mirror
2. In plane mirrors, the image is always  
(A) Real and the same size as an object  
(B) Real and different size as the object  
(C) Virtual and the different size as the object  
(D) Virtual and the same size as the object

3. The diagram below shows the letter P in front of a plane mirror



Which diagram best represents the image of P produced by the plane mirror?



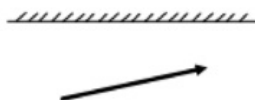
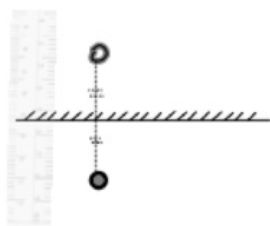
4. If a lady 1.6 m tall can see her full image in a plane mirror, then the minimum possible vertical length of the mirror is about \_\_\_\_\_ m.  
(A) 0.8  
(B) 1.6  
(C) 1.2  
(D) 0.4
5. The image formed by a plane mirror is \_\_\_\_\_.  
(A) Sometimes real and sometimes virtual  
(B) Always virtual  
(C) Always real

6. The image of an object as formed by a plane mirror is located \_\_\_\_.
- (A) In front of the mirror surface  
 (B) On the mirror surface  
 (C) Behind the mirror surface  
 (D) Any of the above, depending on the object's location.
7. If you stands 2.0 m in front of a plane mirror, how far away would you see the image of yourself?
- (A) 1.0 m  
 (B) 2.0 m  
 (C) 4.0 m  
 (D) 8.0 m
8. A plane mirror forms an image that is
- (A) Real and upright.  
 (B) Virtual and upright.  
 (C) Real and upside down  
 (D) Virtual and upside down.
9. Which of the following best describes the image formed by a plane mirror?
- (A) Virtual, inverted and enlarged  
 (B) Real, inverted and reduced  
 (C) Virtual, upright and the same size as object  
 (D) Real, upright and the same size as object

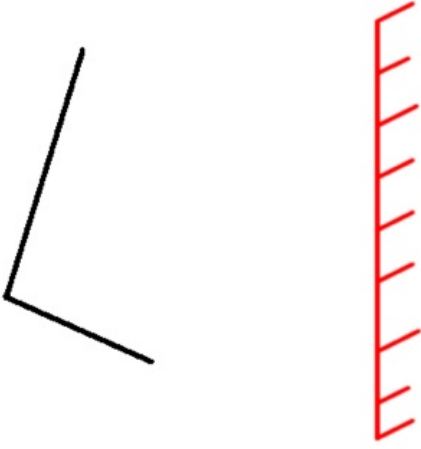
**PART B: WRITTEN RESPONSE**

1. Images in plane mirror are said to be virtual. Our eye assumes that light travels in straight lines. When rays are spreading out, our brain takes these rays back to the place where all the diverging rays meet. For a mirror, this would be behind the mirror and light really doesn't travel behind the mirror. So, the image is said to be virtual.

Locate the image for each of the following.  
 Use a ruler and a sharp pencil

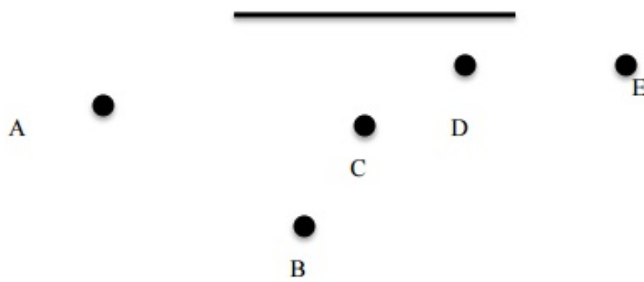


2. Directions: Construct the image produced in the following diagrams and state the image properties



Property	Image

3. Five students are seated at A, B, C, D and E in front of a mirror as shown. Use ray diagrams to determine what students each student can see. You must show your diagrams. Draw your rays from the center of the circle.



Student	Can See
A	
B	
C	
D	
E	