Unit 6K
Reflection
Examining the Law of Reflection Lab

Name:

Date:

Objective:

To determine if the law of reflection applies to all types of mirrors.

Materials:

- flat mirror
- convex mirror
- concave mirror
- thumbtack
- protractor
- ruler
- paper

Part One: Flat Mirror

1. Place a flat mirror along the edge of the paper.

2. To one side of the mirror, place the thumbtack into the paper.

3. Look at an angle into the mirror so that you see the reflection of the thumbtack. Using the ruler, trace a line from the mirror along the line at which you are seeing the reflection. This is your line of reflection.

4. Repeat again, looking at the reflection of the thumbtack from a different angle.

5. Draw a line from the thumbtack to where the line of reflection intersects with the edge of the paper. This is the line of incidence.

6. Next, draw a line from where the lines of incidence and reflection intersect straight across the page. This is the normal line.

7. Using the protractor, measure the angle between the normal line and the line of incidence This is the angle of incidence.

   Angle of incidence = _____ .

8. Next measure the angle between the normal line and the line of reflection. This is the angle of reflection.

   Angle of reflection = _____ .

9. How do the angle of incidence and angle of reflection compare to one another?

   _____

10. Repeat for the other lines of incidence and reflection.

    Angle of incidence = _____ .

    Angle of reflection = _____ .

11. How do the angles between the normal line and these two lines compare?

    _____

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Part Two: Convex Mirror

1. Place a convex mirror along the edge of the paper.

2. To one side of the mirror, place the thumbtack into the paper.

3. Look at an angle into the mirror so that you see the reflection of the thumbtack. Using the ruler, trace a line from the mirror along the line at which you are seeing the reflection. This is your line of reflection.

4. Repeat again, looking at the reflection of the thumbtack from a different angle.

5. Draw a line from the thumbtack to where the line of reflection intersects with the edge of the paper. This is the line of incidence.

6. Next, draw a line from where the lines of incidence and reflection intersect straight across the page. This is the normal line.

7. Using the protractor, measure the angle between the normal line and the line of incidence This is the angle of incidence?

   Angle of incidence = _____ .

8. Next measure the angle between the normal line and the line of reflection. This is the angle of reflection.

   Angle of reflection = _____ .

9. How do the angle of incidence and angle of reflection compare to one another?

   _____

10. Repeat for the other lines of incidence and reflection.

    Angle of incidence = _____ .

    Angle of reflection = _____ .

11. How do the angles between the normal line and these two lines compare?

    _____

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Part Three: Concave Mirror

1. Place a concave mirror along the edge of the paper.

2. To one side of the mirror, place the thumbtack into the paper.

3. Look at an angle into the mirror so that you see the reflection of the thumbtack. Using the ruler, trace a line from the mirror along the line at which you are seeing the reflection. This is your line of reflection.

4. Repeat again, looking at the reflection of the thumbtack from a different angle.

5. Draw a line from the thumbtack to where the line of reflection intersects with the edge of the paper. This is the line of incidence.

6. Next, draw a line from where the lines of incidence and reflection intersect straight across the page. This is the normal line.

7. Using the protractor, measure the angle between the normal line and the line of incidence This is the angle of incidence.

    Angle of incidence = _____ .

8. Next measure the angle between the normal line and the line of reflection. This is the angle of reflection.

    Angle of reflection = _____ .

9. How do the angle of incidence and angle of reflection compare to one another?

    _____

10. Repeat for the other lines of incidence and reflection.

    Angle of incidence = _____ .

    Angle of reflection = _____ .

11. How do the angles between the normal line and these two lines compare?

    _____

Conclusions:

1. For which types of mirrors does the law of reflection apply? Justify with evidence from your findings.

    _____

    _____