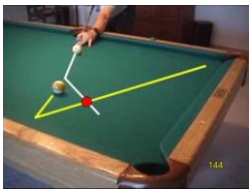
Science 8

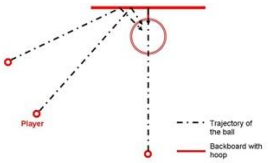
Optics 4

Name:
Date:
Block:

1. Law of Reflection
2. Measuring Angles

Law of Reflection





The LAW OF REFLECTION

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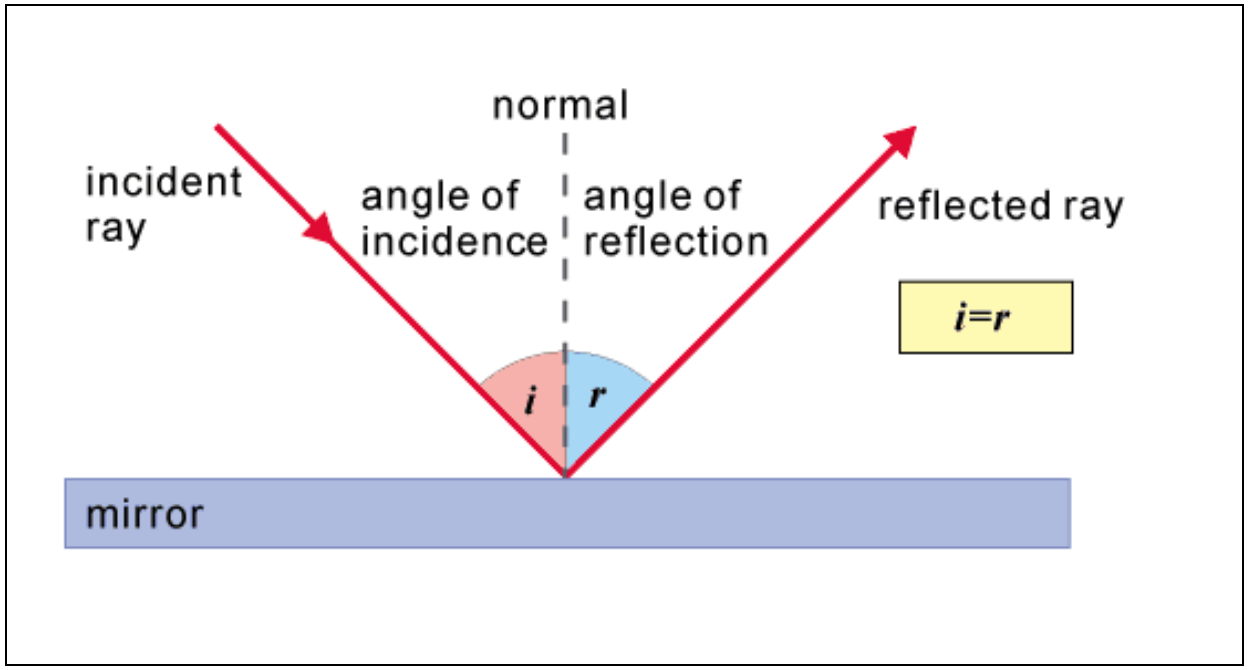


Incident ray: the _____ light ray

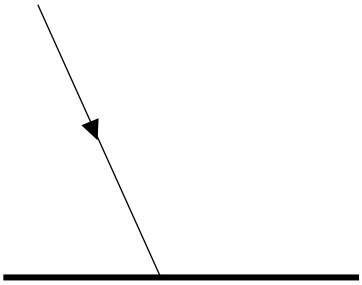
Reflected ray: the light ray that is _____

Normal: an _____line that passes through a material at _____.

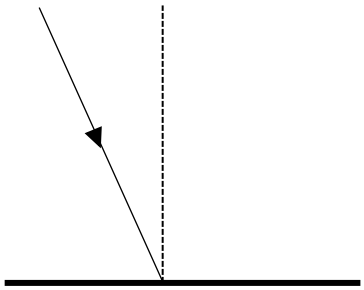
Angle of Incidence (i): angle formed between the _____ and the normal.

Angle of Reflection (r): angle formed between the _____ and the normal.

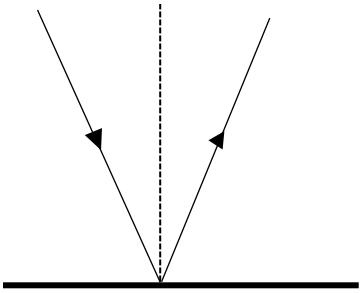
1. Incident ray hits the mirror.



2. Normal is formed from where the light ray hits the mirror.

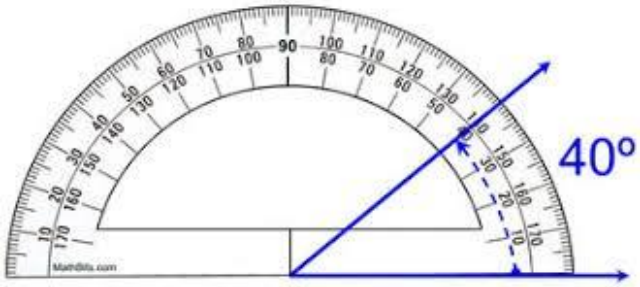


3. Reflected angle is created.

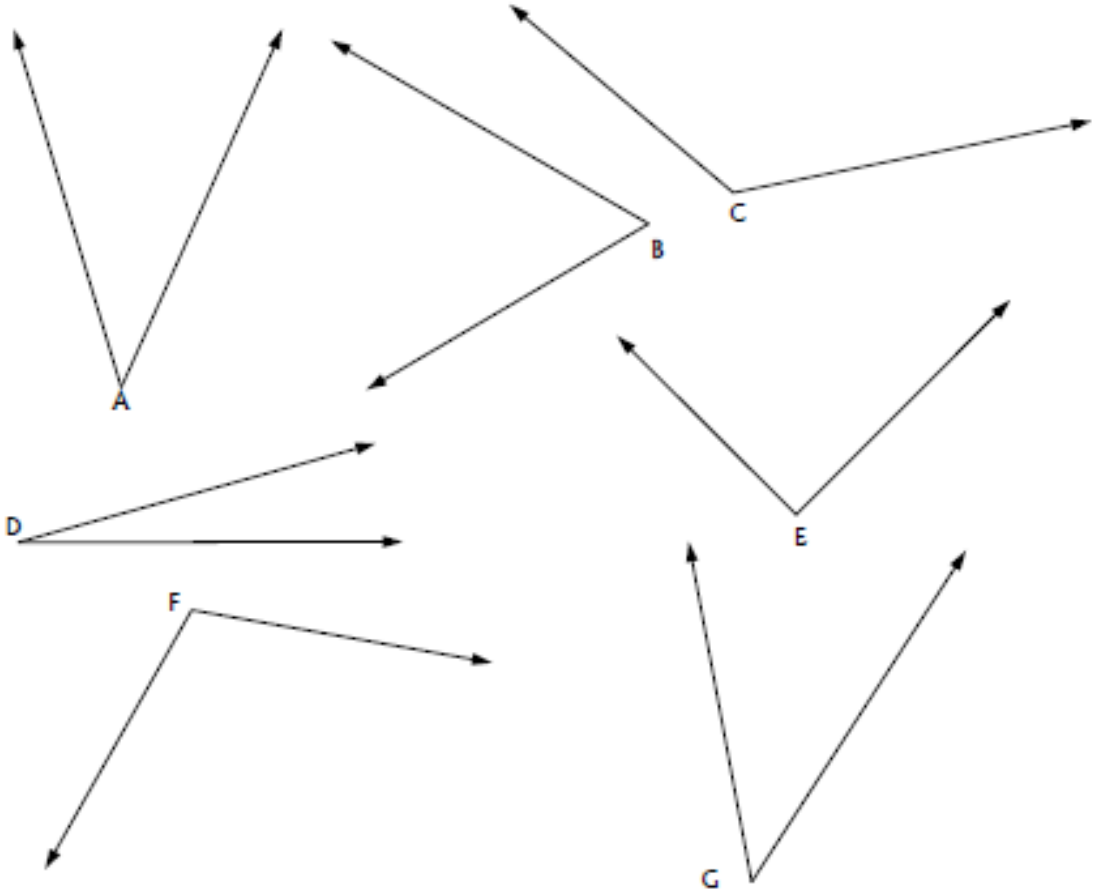


How to use a protractor:

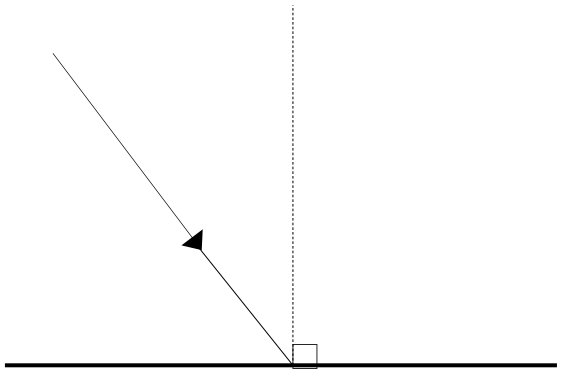
1. Place the cross or circle at the point (vertex) of the angle that is being measured.
2. Read from the zero on the outer scale of your protractor.

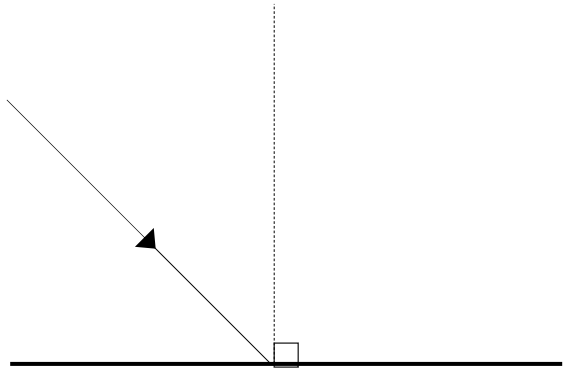


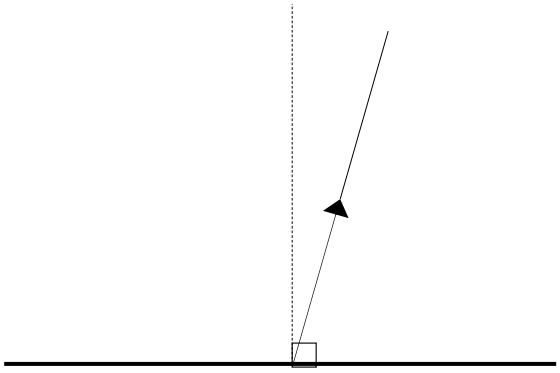
Measuring Angles

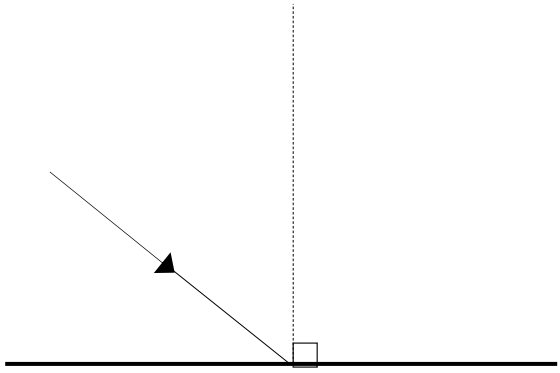


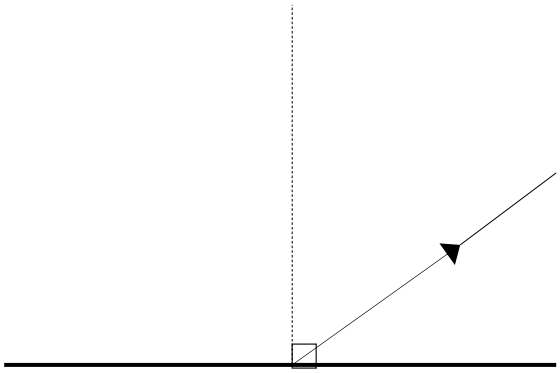
For the following diagrams, measure the angle and label each as either an angle of reflection or angle of incidence.

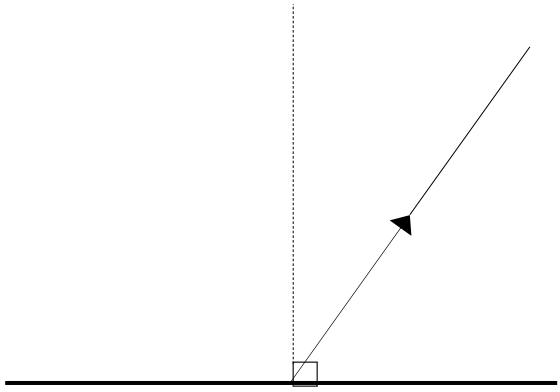






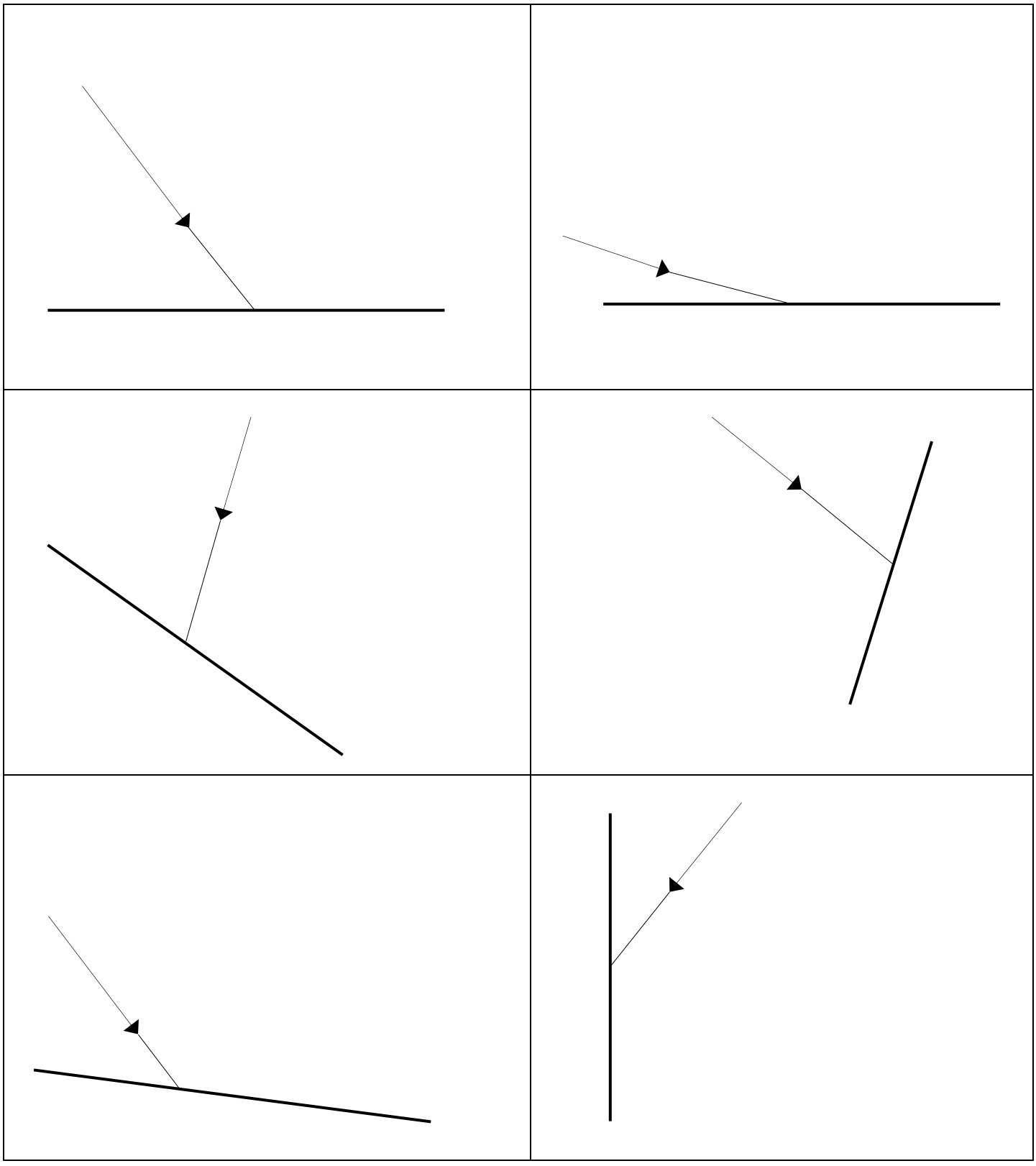






For the following diagrams:

- **Draw** the normal as a dotted line.
- **Measure** the incident angle.
- **Measure** the reflected angle.
- **Draw** the reflected ray.



Use the Law of Reflection and the following steps to reflect the ray of light in order to hit the flower.

Step 1: Extend the incident ray towards the first mirror.

Step 2: Use a protractor to draw the normal with a dotted line. **Make sure the normal makes a 90-degree angle with the mirror.**

Step 3: Measure the angle of incidence. Write down this angle.

Step 4: Draw the reflected ray and write down the angle of reflection.

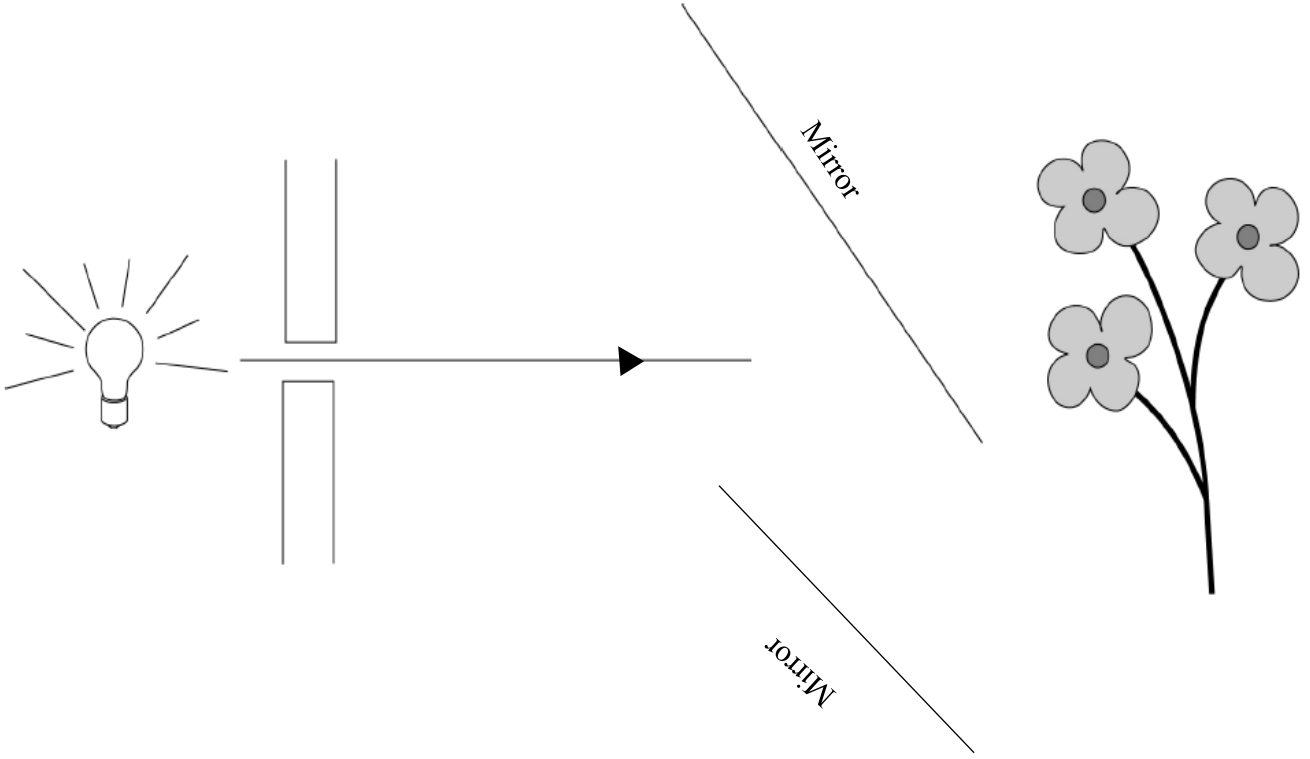
Step 5: The reflected ray now turns into the incident ray.

Step 6: Extend the incident ray towards the second mirror. Repeat steps 2 – 4 and extend the reflected ray until it hits the flower.

Label the following:

- Normal
- Mirror
- Angle of incidence (i)
- Angle of reflection (r)

Don't forget to also <u>draw arrows</u> on the incident rays and reflected rays to show the direction of the rays!



Use the Law of Reflection and the following steps to reflect the ray of light in order to hit the plant.

Step 1: Extend the incident ray towards the first mirror.

Step 2: Use a protractor to draw the normal with a dotted line. **Make sure the normal makes a 90-degree angle with the mirror.**

Step 3: Measure the angle of incidence. Write down this angle.

Step 4: Draw the reflected ray and write down the angle of reflection.

Step 5: The reflected ray now turns into the incident ray.

Step 6: **Draw your own mirror** to reflect the ray of light.

Step 7: Repeat steps 2 to 5 to hit the plant with ray of light.

Label the following:

- Normal
- Mirror
- Angle of incidence (i)
- Angle of reflection (r)

Don't forget to also <u>draw arrows</u> on the incident rays and reflected rays to show the direction of the rays!