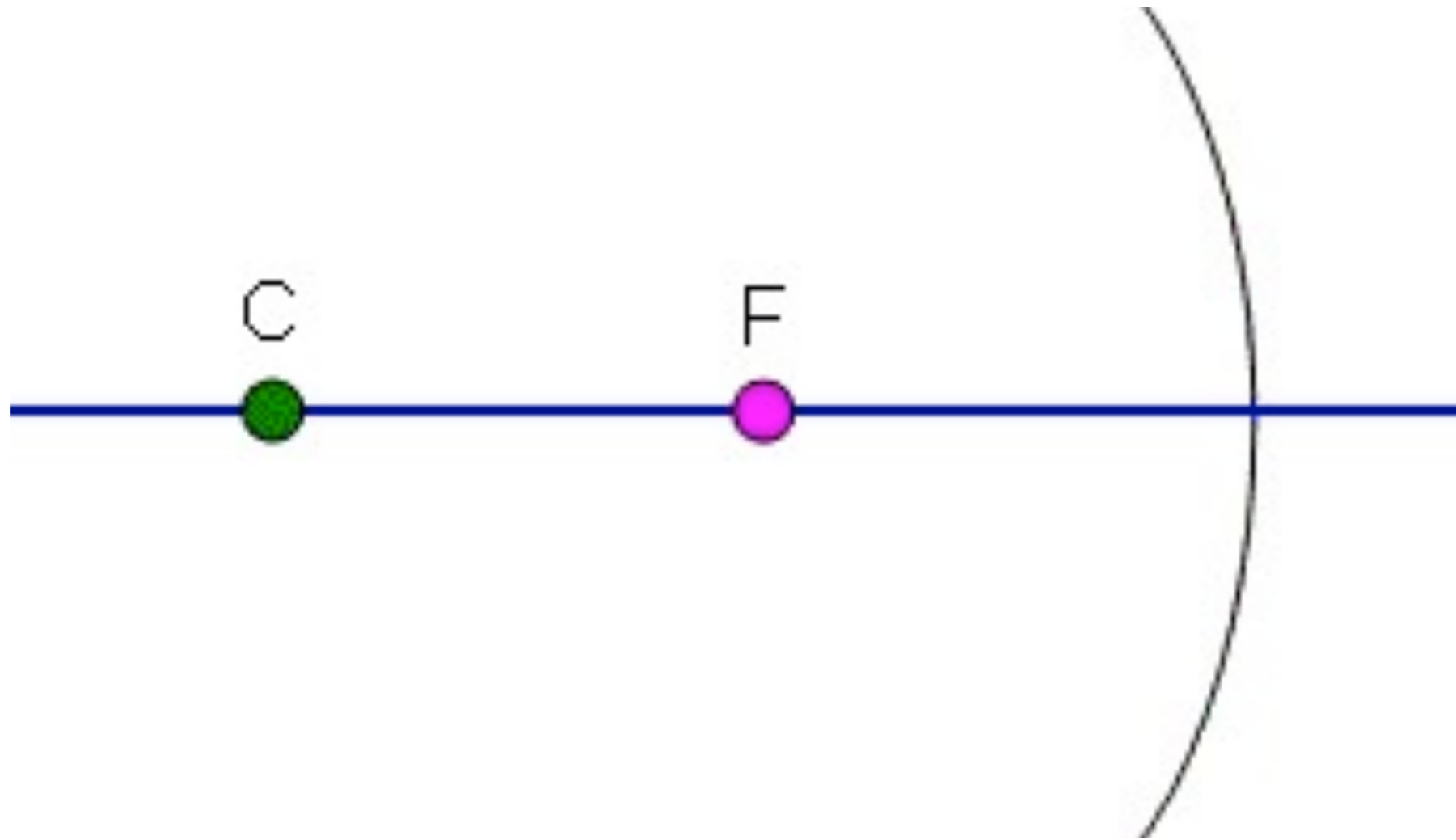


# Do Now

- Get out a calculator, notebook, pencil and a ruler.
- In your notes: draw a ray diagram for an object that is 10cm from a convex mirror with a focal point of 7cm.
- Solve for  $D_i$ .



# Ray Diagram

$F=7\text{ cm}, D_o=10\text{ cm}$

# Tonight

- Ray Diagram Worksheet
- Draw a ray diagram for each situation
- Complete the table at the bottom of the page.



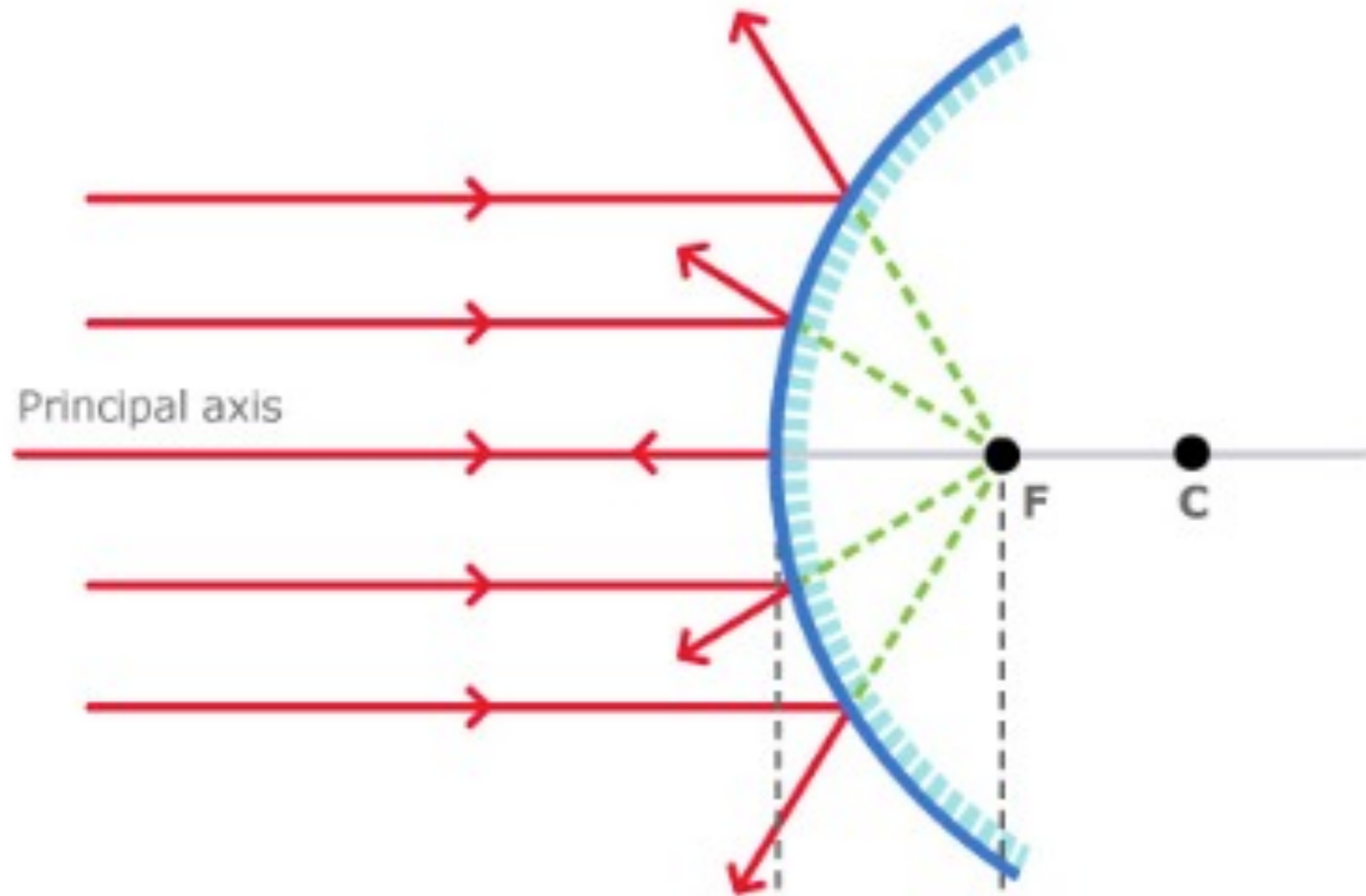
# Convex Mirrors



# Spoons

# Convex Mirrors

- The image is always smaller.
- The image is always upright.
- The image is always virtual.

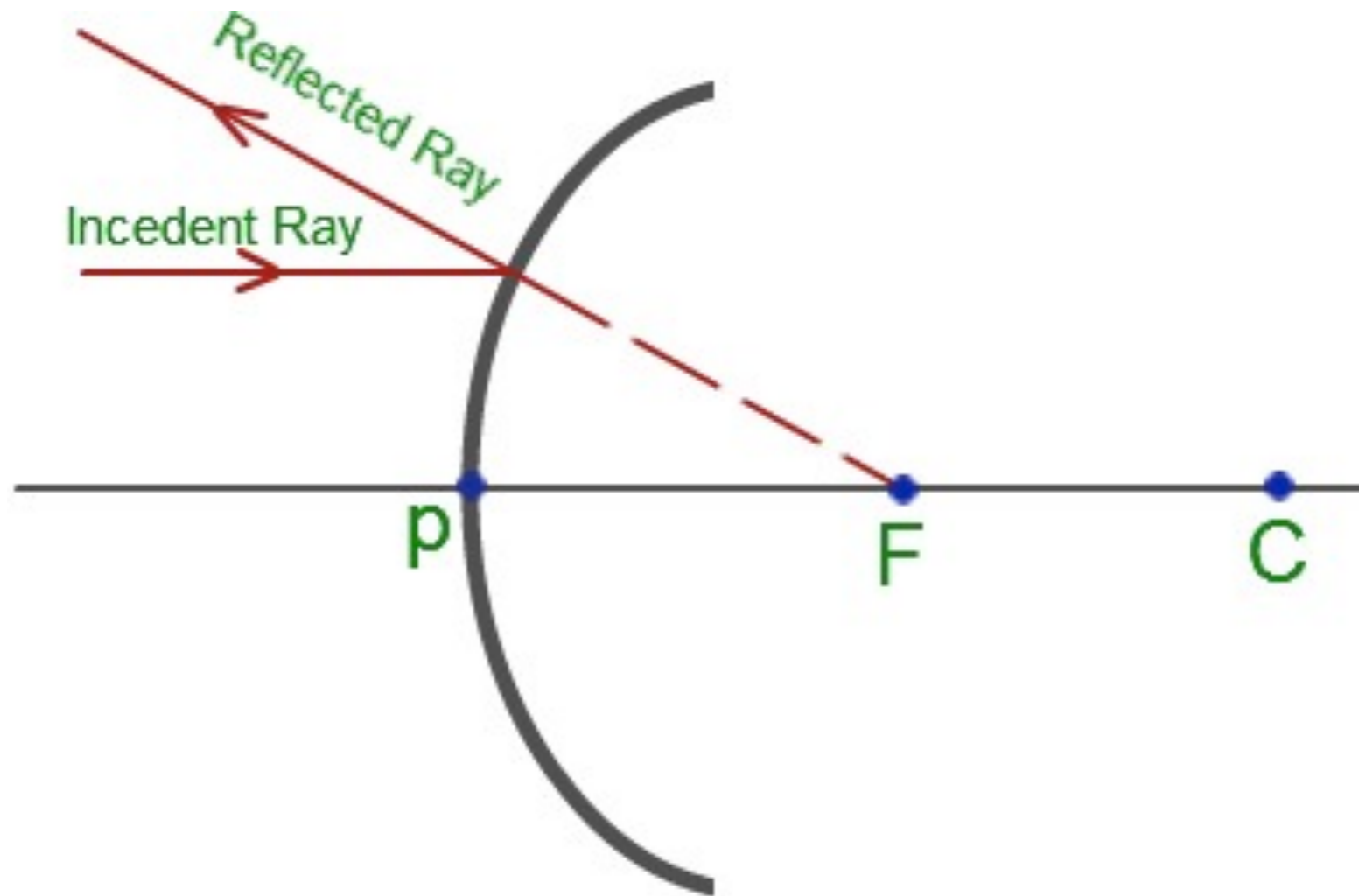


# Ray Diagrams



# Ray Diagrams

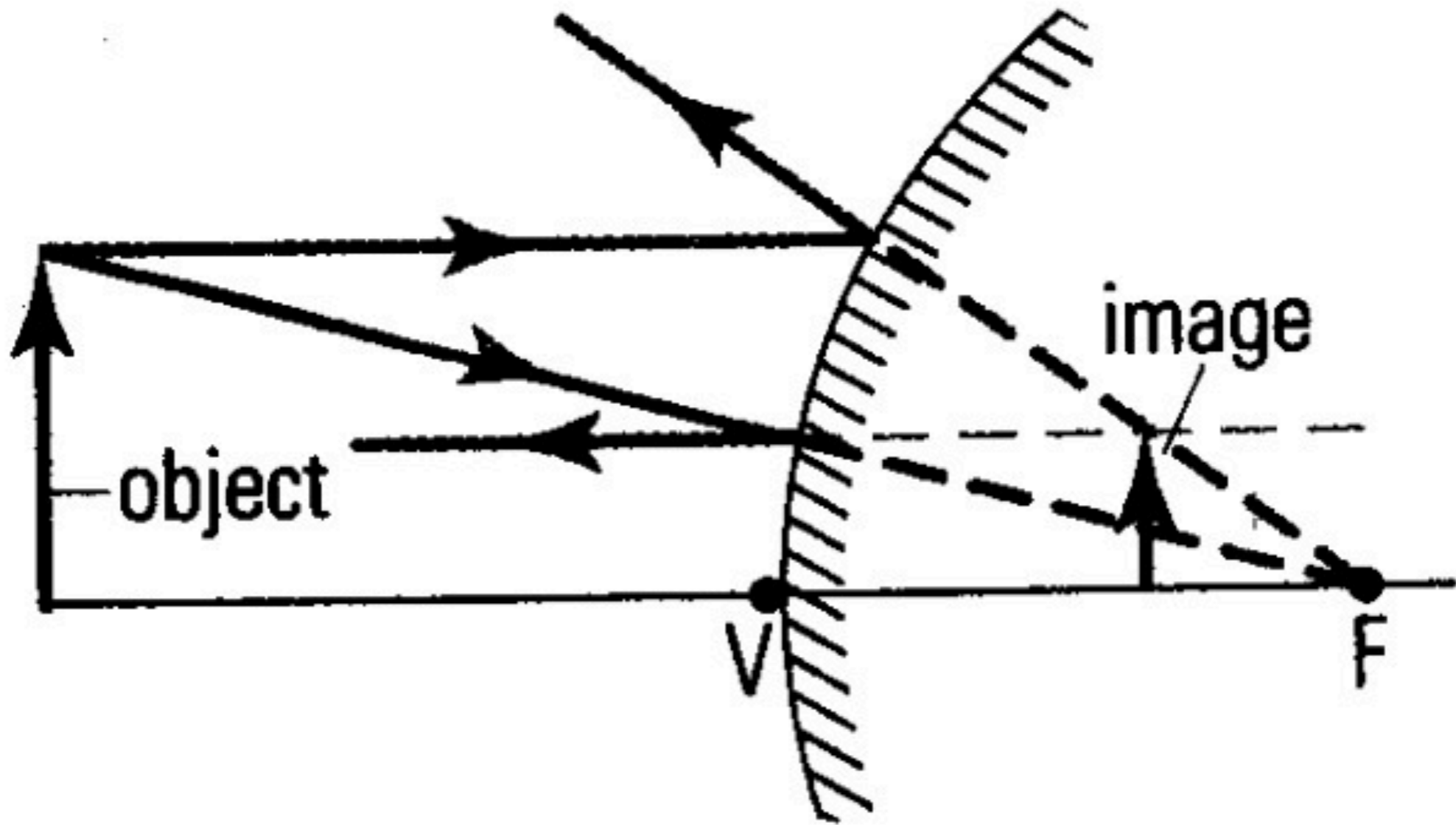
- Similar to concave mirrors.
- Draw a line parallel to the principal axis from the object to the mirror. The ray then bounces off **away from the focal point.**



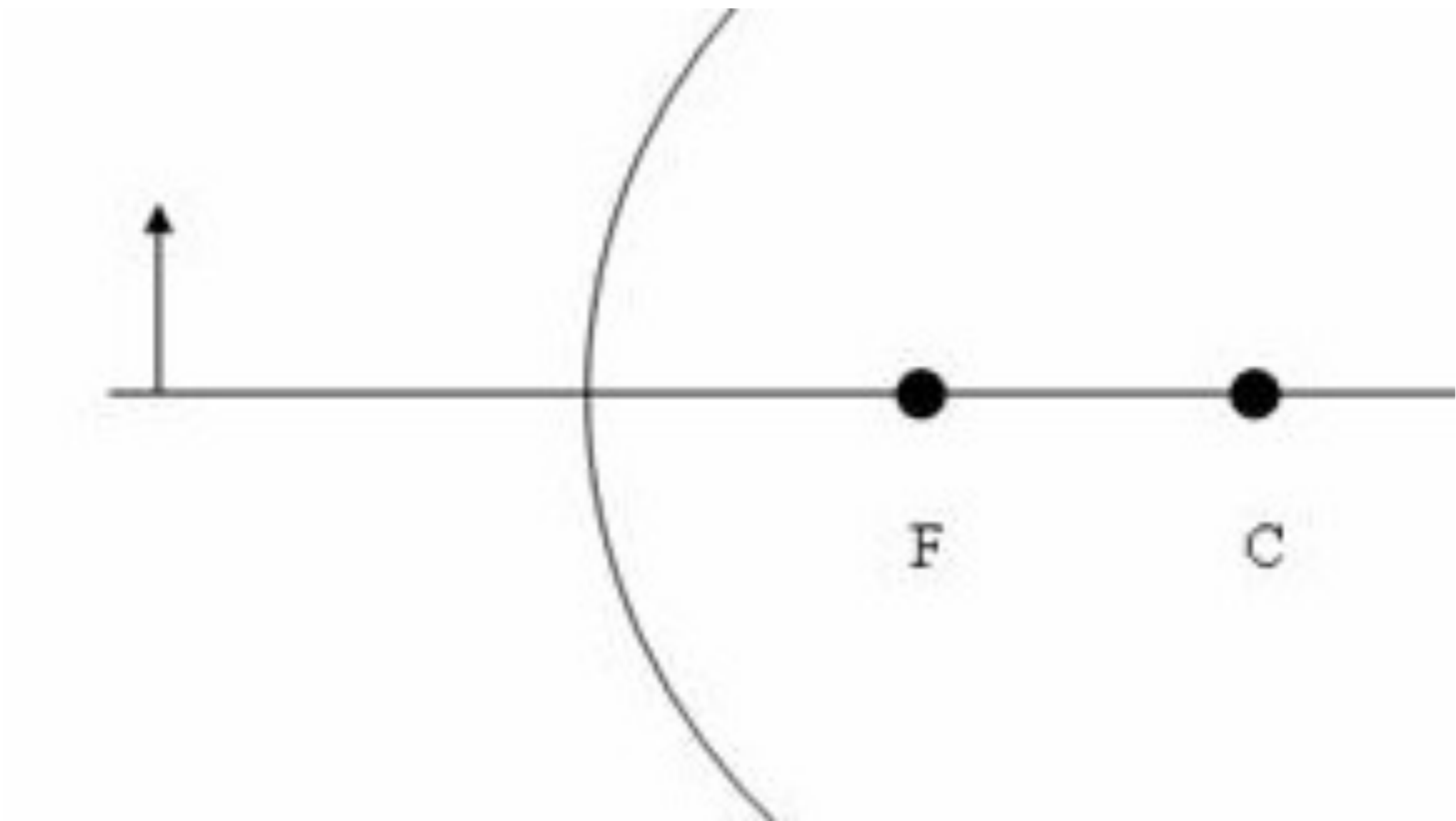
# Line I

# Line 2

- Draw a ray from the object towards the focal point.
- The ray then reflects off the mirror, parallel to the principal axis.
- Extend lines to the other side of the mirror. Where two meet, there is the virtual image.



Line 2



# Example



# Mirror Magnification

$$M = h_i/h_o = -D_i/D_o$$

- M - Magnification: Unitless ratio.
- $M > 1$ : the image is larger than the object.
- $M < 1$ : the image is smaller than the object.

$$M = h_i/h_o = -D_i/D_o$$

- Equation is applicable for both concave and convex mirrors.
- **Reminder:** if the image is on the opposite side as the object,  $D_i$  is negative.
- If you know  $F$ , you may apply  $1/f = 1/D_o + 1/D_i$



$$F = 10\text{cm} \quad D_o = 12\text{ cm} \quad H_o = 3\text{ cm}$$

Find  $D_i$  and  $H_i$

$$M = H_i/H_o = -D_i/D_o \quad \& \quad 1/F = 1/D_o + 1/D_i$$

A 4.0-cm tall light bulb is placed a distance of 35.5 cm from a convex mirror having a focal length of -12.2 cm. Determine the image distance and the image size.

A 2.80-cm diameter coin is placed a distance of 25.0 cm from a convex mirror that has a focal length of -12.0 cm. Determine the image distance and the diameter of the image.

# Tonight

- Ray Diagram Worksheet
- Draw a ray diagram for each situation
- Complete the table at the bottom of the page.

# Wild Cards

- I am coming around with playing cards.
- Please pick one.

# Find Your Pair

- Find the other person with your card.
- Move and sit with them.

# Review Session

- You and your partner will be making review sheet about a particular topic that we have covered so far in class.
- You will create the review in a word document along with a typed answer sheet.
- You have until the end of the period to create your questions.

# Card: Topic-# of ?s

- 2-Constant Velocity and position-time graphs. 10
- 3-Horizontal 1-D kinematics and velocity-time graphs. 10
- 4-Vertical 1-D kinematics. 10
- 5-Velocity-time graphs with constant acceleration. 10
- 6-Newtons 1st and 3rd laws. 10
- 7-Newtons 2nd on flat surface. 10



# Card: Topic-# of ?s

- 8-Newton's 2nd on an inclined plane. 6
- 9-Circular Motion. 5 W/o friction, 3 W/.
- 10- 2-D kinematics. 4 Horizontal, 4  $Y_i=Y_f$
- J- 2-D kinematics with change in launch and landing height. 6
- Q-Work, Power & Energy. 10
- K&A-Electricity. 10 total. At least 3 combo circuits.

# Today

- Create your review sheet.
- Do all of the problems.
- Create an answer key.
- Save it to **Your** drop folder.
- Let me know when you have finished.

# Resources

- [Physicsclassroom.com](http://Physicsclassroom.com)
- School Wires
- [lightandmatter.com](http://lightandmatter.com)
- your notes

# Next Step

- Trade questions with another group.
- **Do not give them the answers.**
- When they do the problems, compare their answers with yours.
- If you agree, put the final draft in **my** drop folder.
- Title: Block.LastNames.Review
  - Example: 3.BreishHayden.Review