Dangers and Uses of Electromagnetic Radiation

Low Energy ← **ENERGY** → High Energy

Low Frequency ← **FREQUENCY** → High Frequency

Long Wavelength ← **WAVELENGTH** → Short Wavelength

Type of Radiation	Uses and/or Dangers

Provide definitions for each of the following terms:

- incandescent light source (give examples): _____

  _____

  _____

- fluorescence: _____

  _____

  _____

- phosphorescence:_____

  _____

  _____

- chemiluminescence: _____

  _____

  _____

- bioluminescence: _____

  _____

  _____

- converging vs diverging rays: _____

  _____

  _____

What is the colour temperature relationship for incandescent light sources?

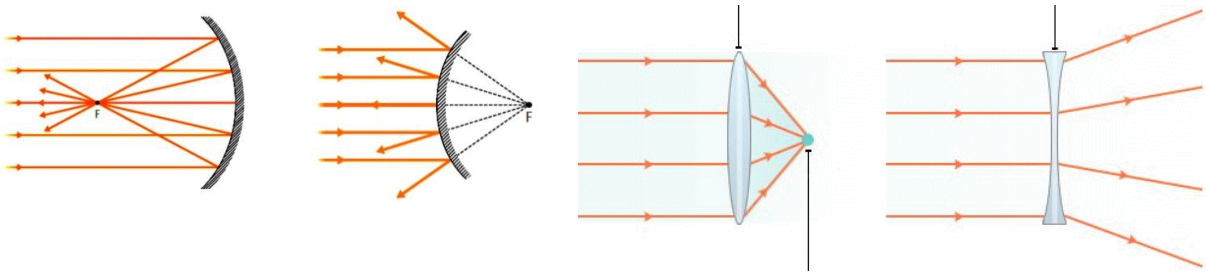
_____

_____

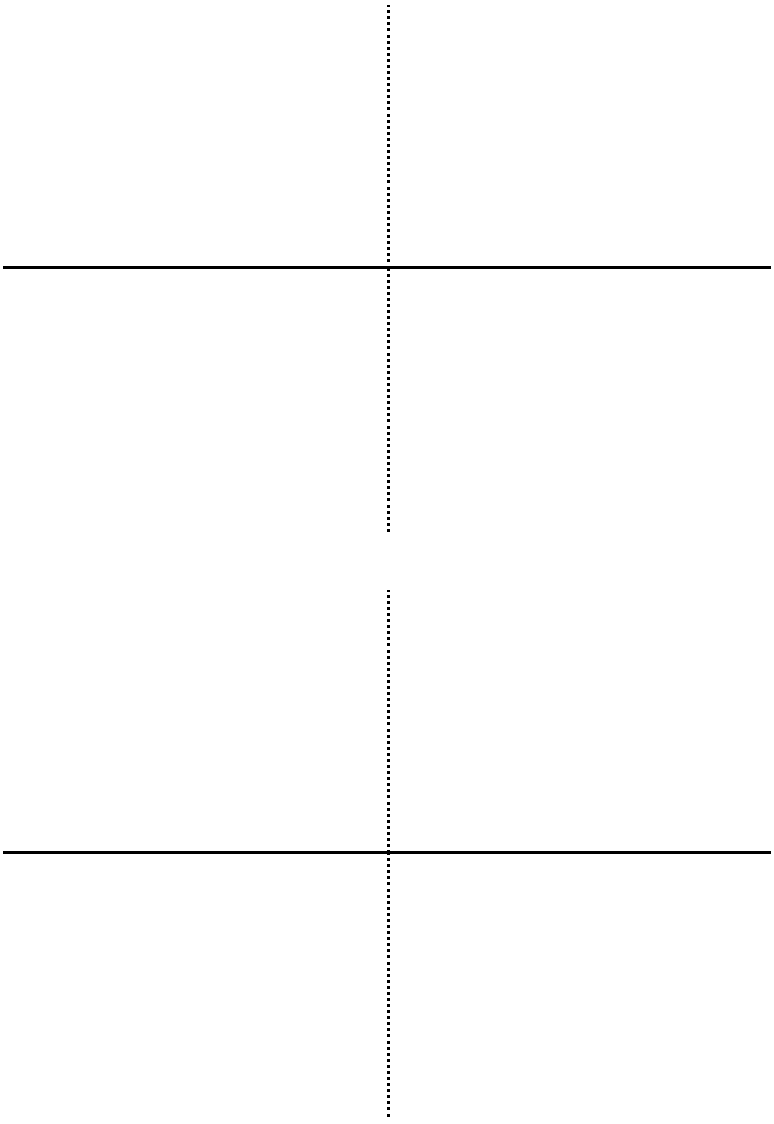
_____

_____

Label each mirror or lens as either concave or convex **AND** diverging or converging



Draw two diagrams that illustrate the principle of refraction. The first diagram should be for a ray of light travelling from air to water (from less optically dense to more optically dense). The second diagram should be for a ray of light travelling from water to air (from more optically dense to less optically dense). Label completely! Which way does the ray bend???



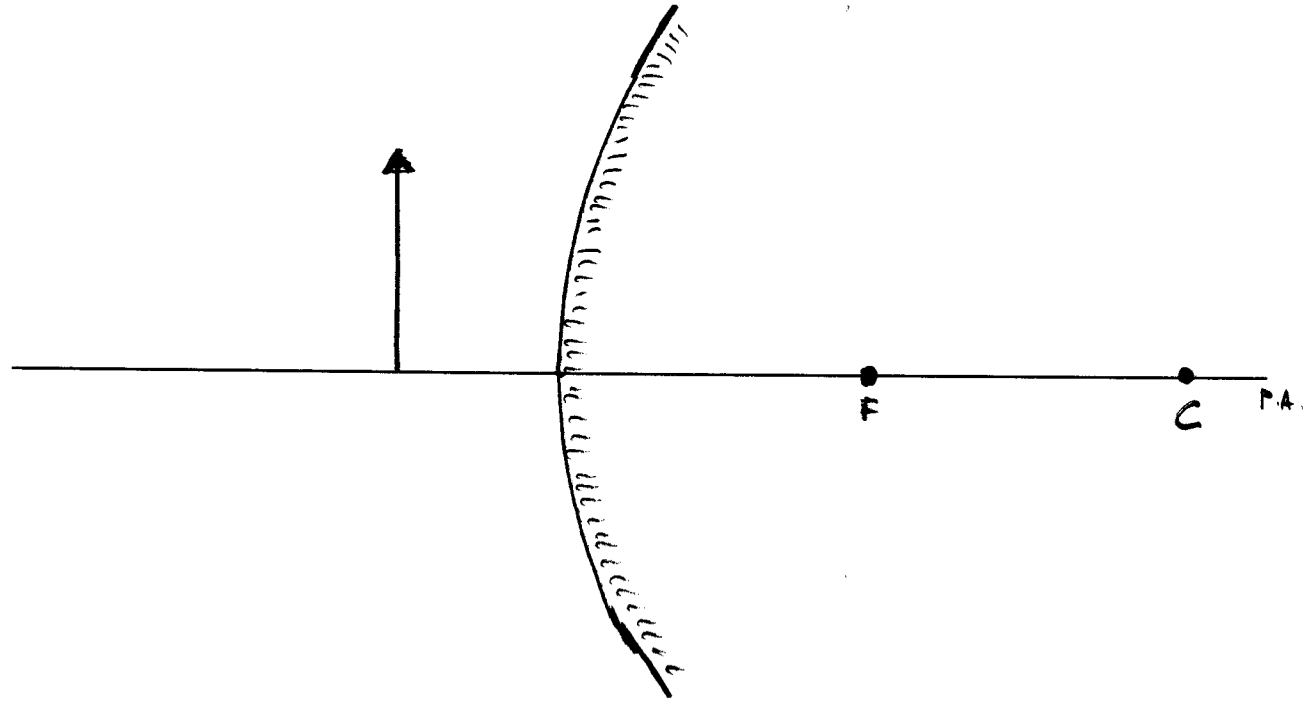
Redraw a diagram that explains why an object in water such as a fish appears closer to the surface than it actually is. Include the label APPARENT LIGHT RAY to help explain this.

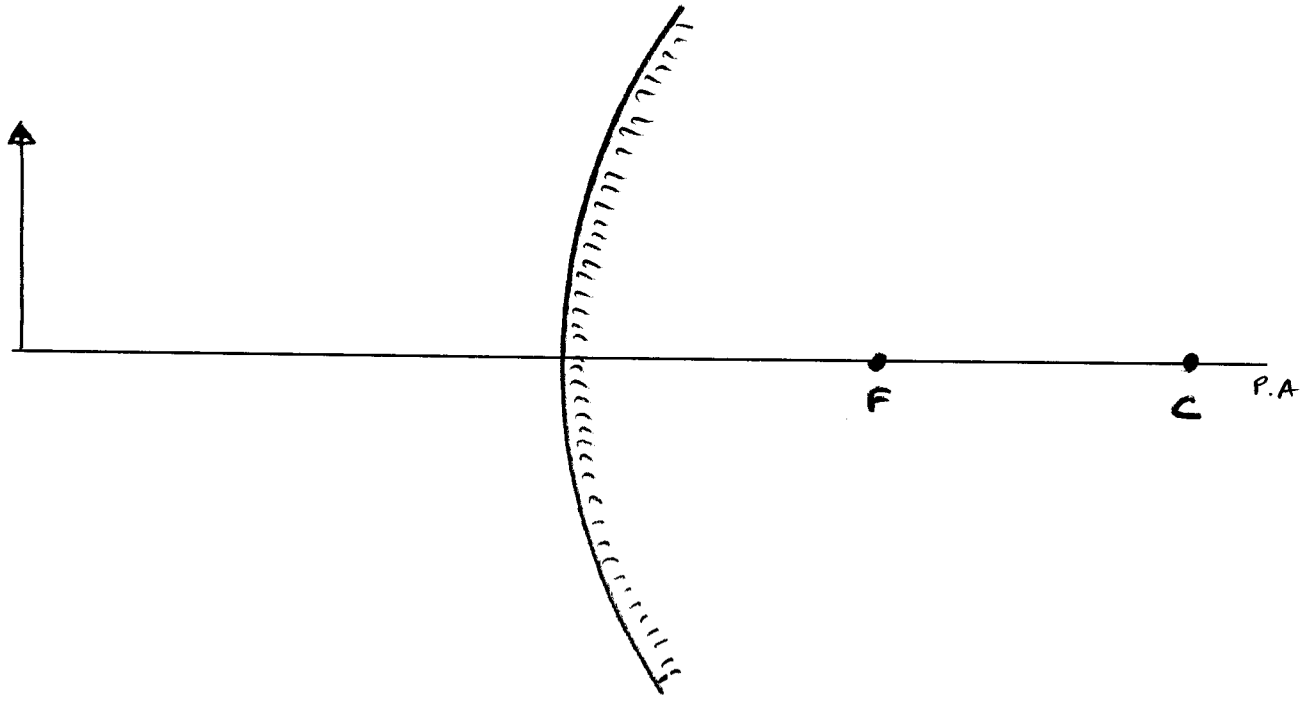
What is total internal reflection. Illustrate this concept by sketching optical fibre and a road mirage.

Name: _____

Convex Mirror Ray Diagrams

For each of the following objects, draw and locate the image using the four ray method. State the size, orientation, location and type for each image:

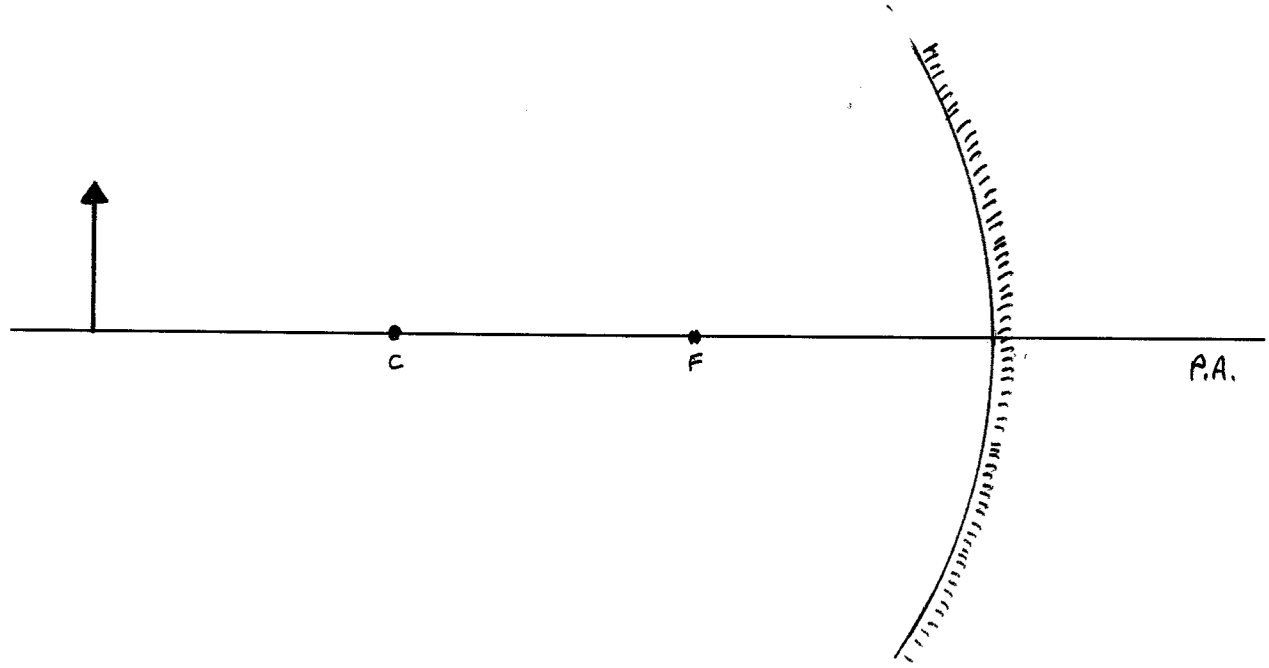


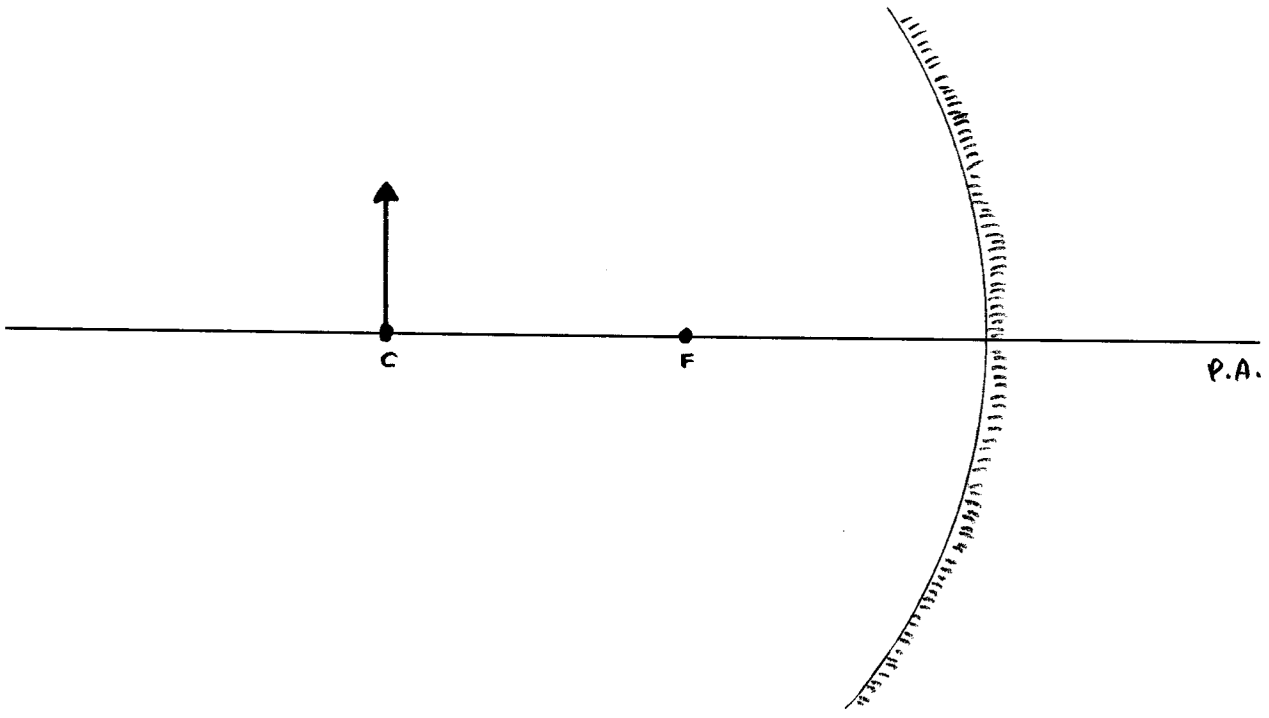


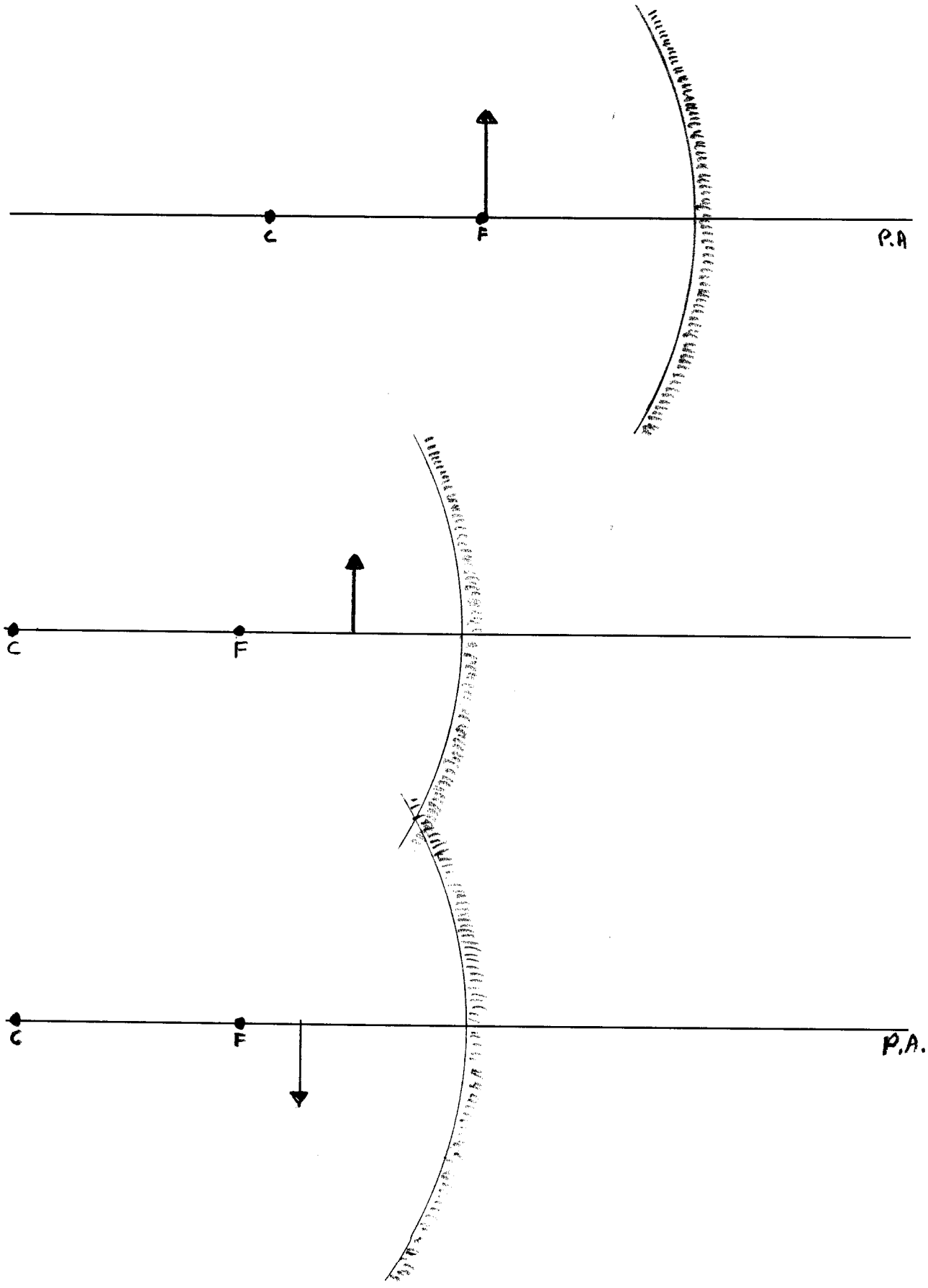
Name:_____

Concave Mirror Ray Diagrams

For each of the following objects, draw and locate the image using the four ray method. State the size, orientation, location and type for each image:

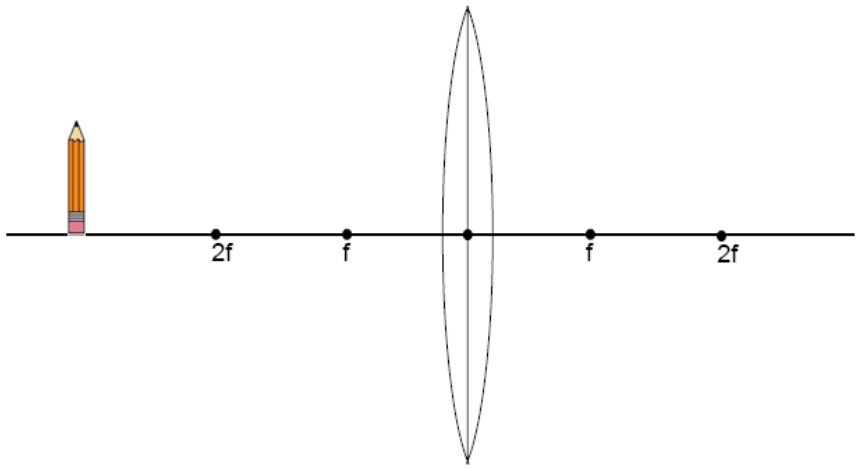




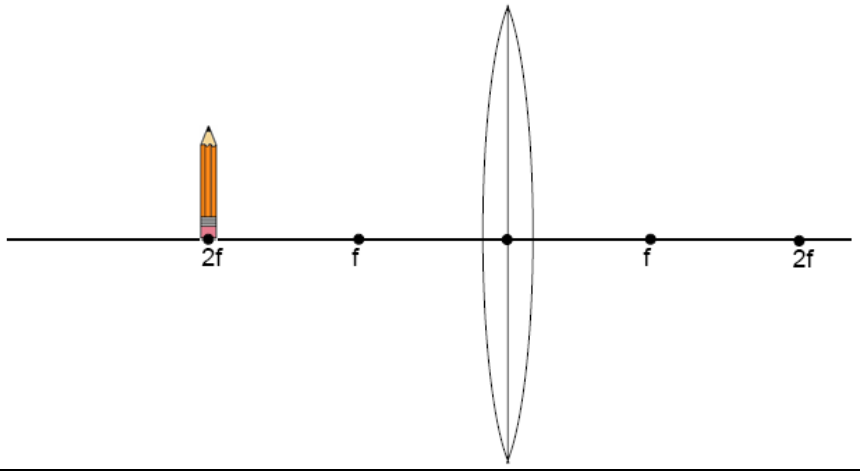

C
F
P.A
C
F
C
F
P.A.

Converging & Diverging Lenses Ray Diagrams

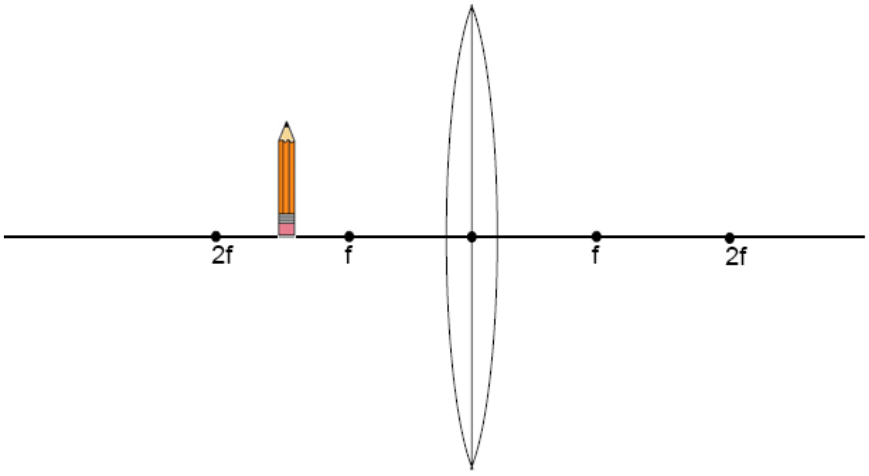
(1)



(2)



(3)



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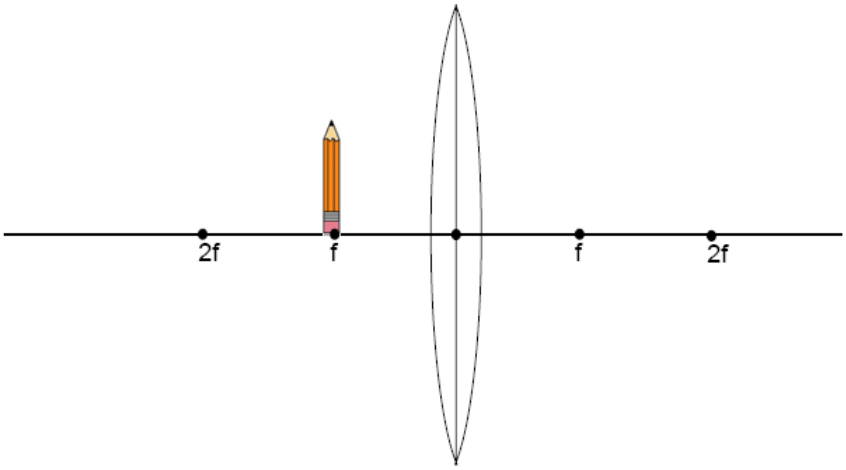

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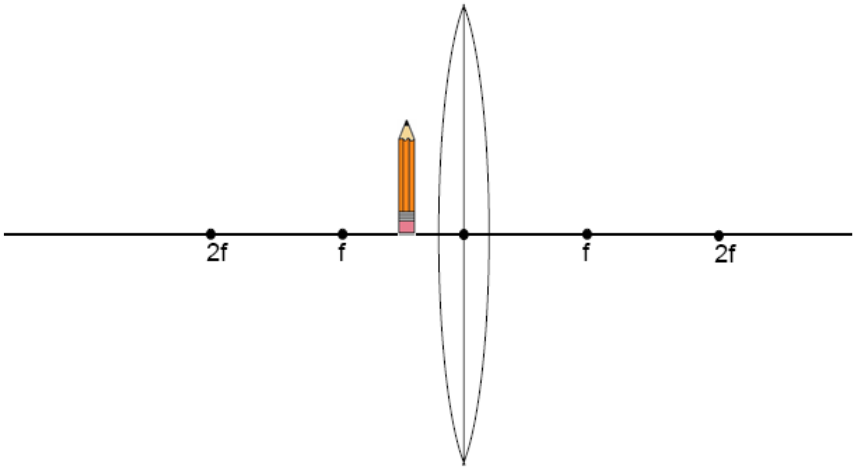

(6)