

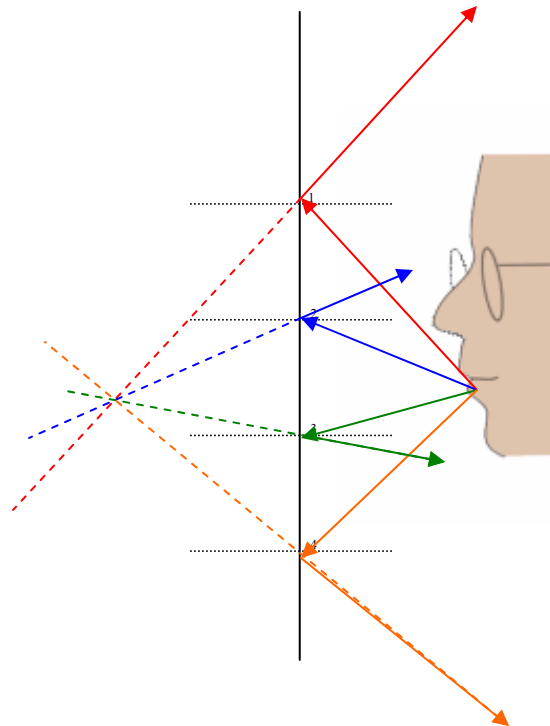
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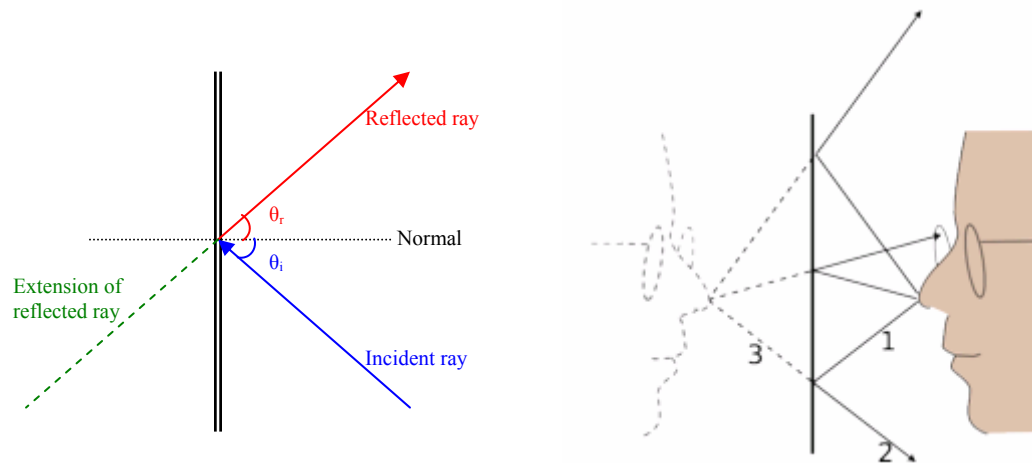
Reflection I: Flat Mirror

1. If the vertical line shown below was a mirror, and the man's face would be reflected on the left side, find the point where the image of the man's mouth should appear. Draw a ray from the man's mouth to all four points listed on the mirror (the normals have been drawn for you as dotted lines); reflect the rays, and find the image point by where the extensions of the reflected rays converge. (4 pts)



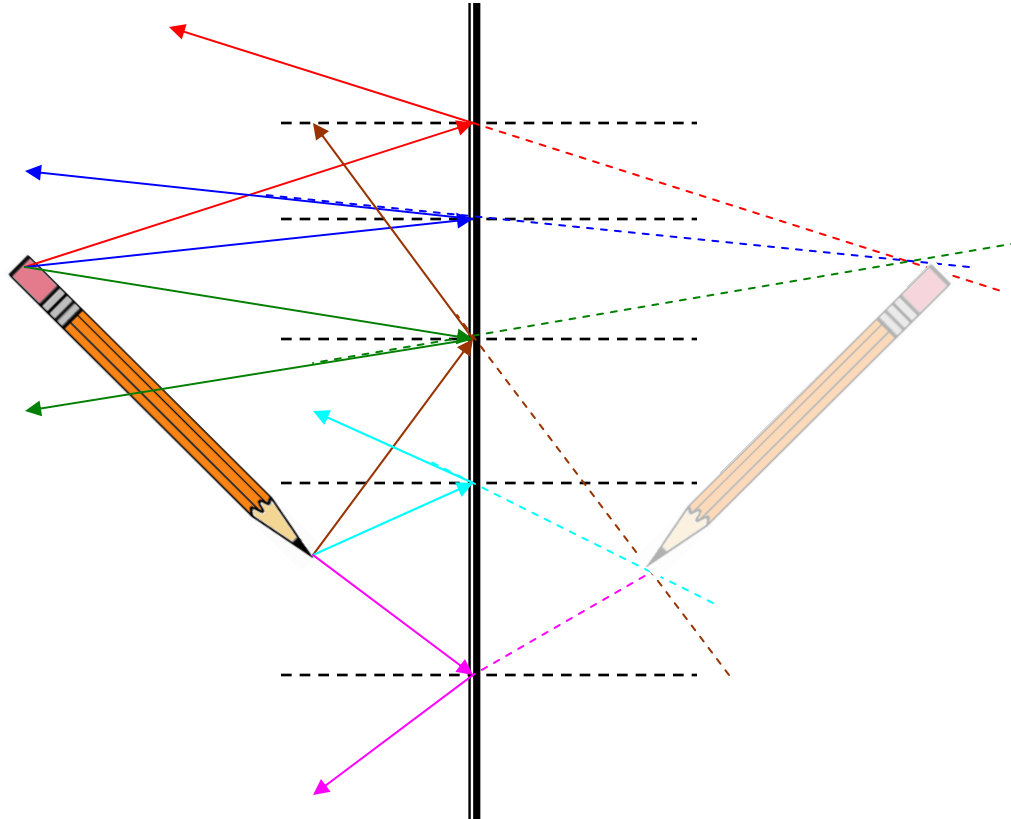
a.

- b. **Hint:** Remember that rays of light bounce off the mirror, and the reflected rays are extended into the mirror, where the image point appears. Listed below is an example of the image point of the man's nose.



i.

2. Reflect the pencil over the mirror using ray diagrams. Draw a ray, normal, reflection, and extension of the reflected ray to find the image point of both the eraser and the tip of the pencil. (4 pts)



3. A ray of light strikes a mirror at an angle of incidence of 28° . What is the angle of reflection? (2 pts)

Since the angle of incidence = angle of reflection, $\theta_r = 28^\circ$

4. If the hand featured below is 4 inches away from the mirror shown, how far away from the actual hand is the image of the hand? (2 pts)

8 inches

$p = 4 \text{ inches}$, $q = 4 \text{ inches}$

$p + q = 8 \text{ inches}$

