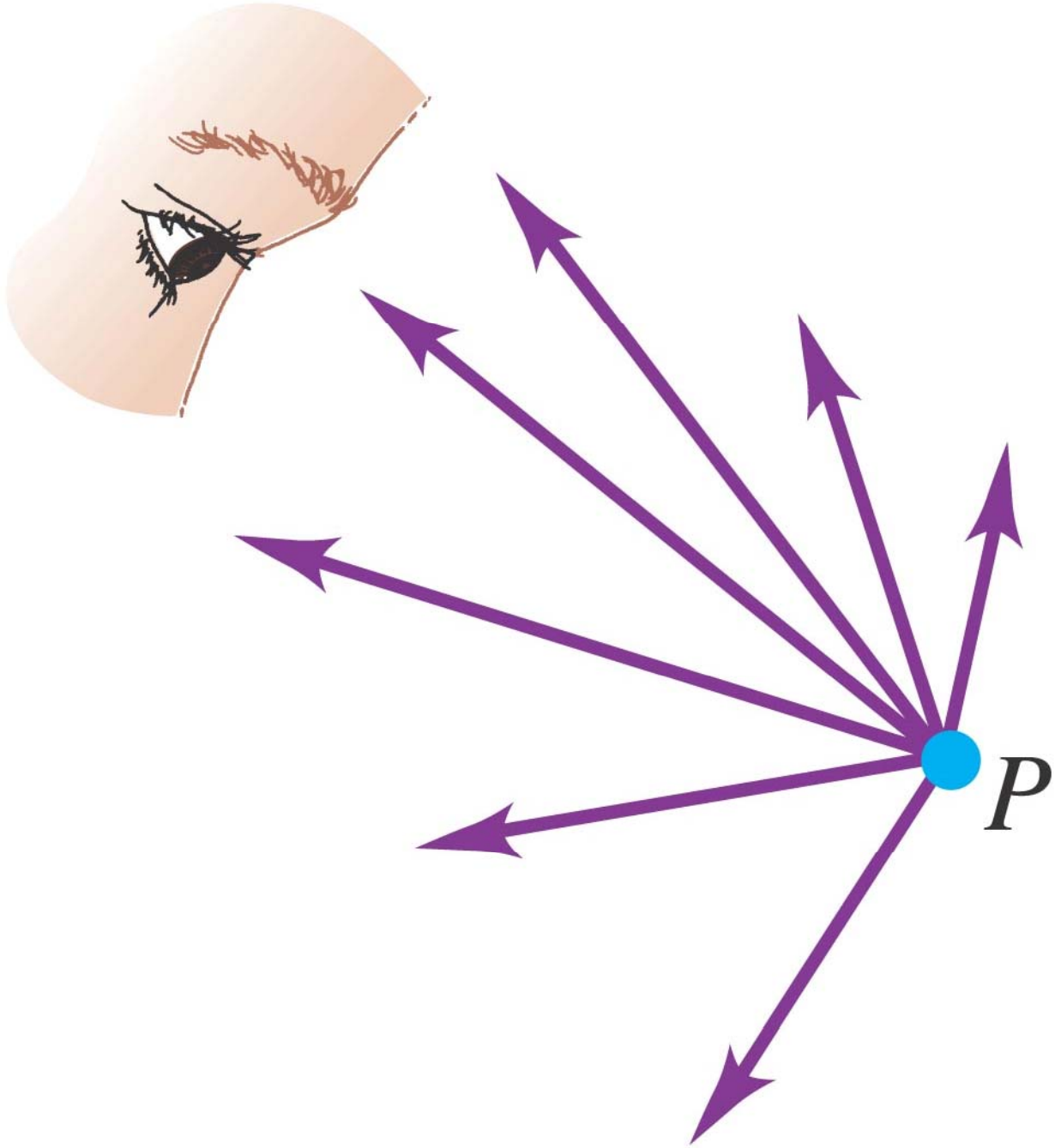
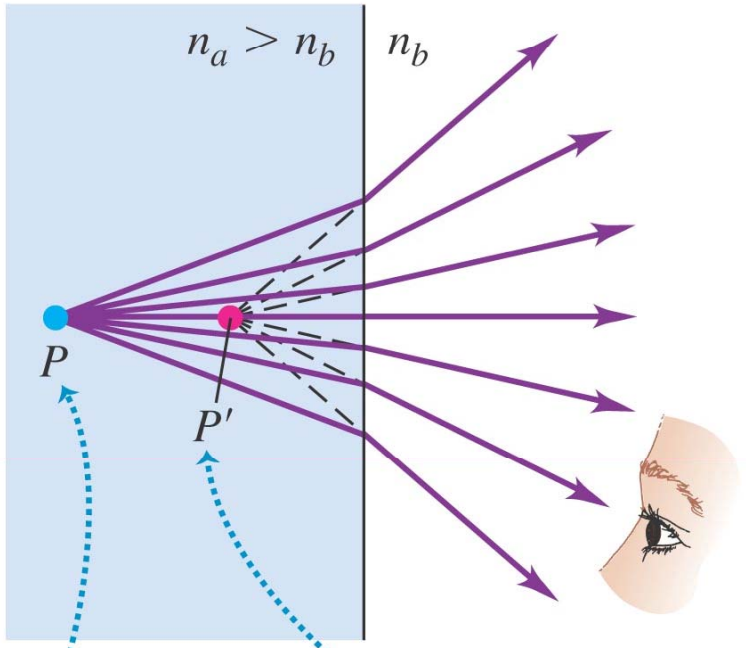
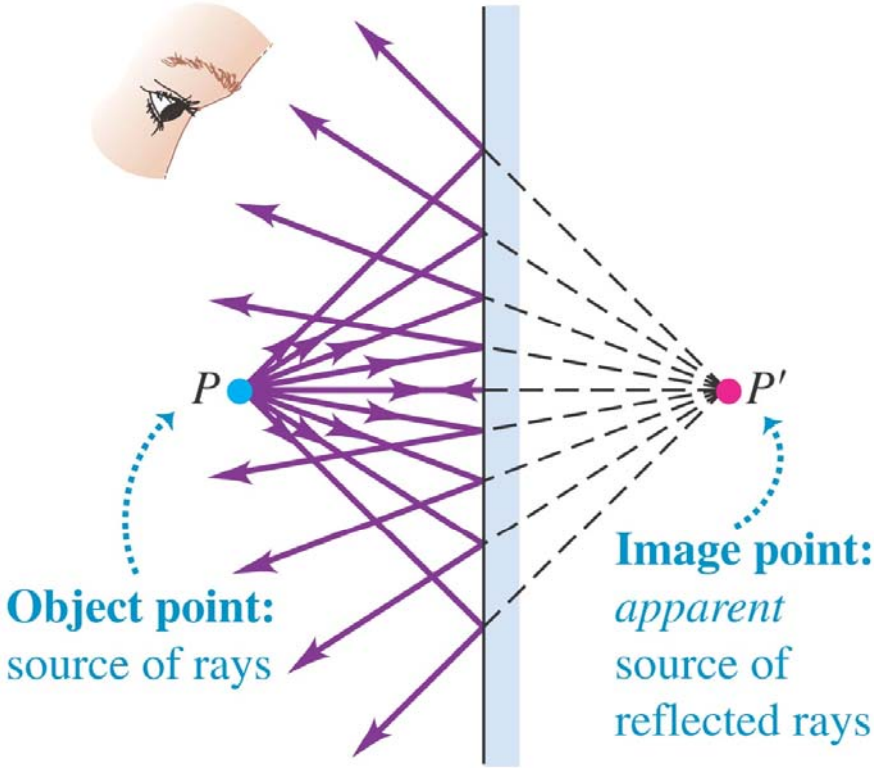


When $n_a > n_b$, P' is closer to the surface than P; for $n_a < n_b$, the reverse is true.



Object point: source of rays

Image point: apparent source of refracted rays



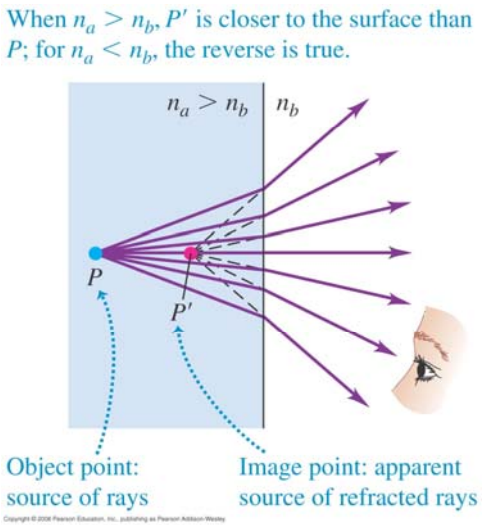
Object point: source of rays

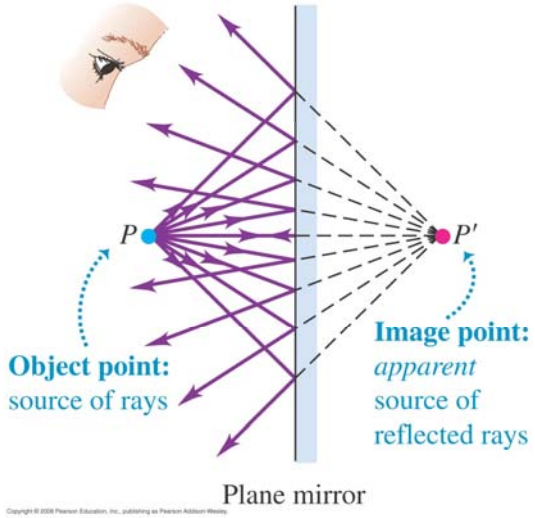
Image point: *apparent* source of reflected rays

Plane mirror

Q34.5

For the two examples, is the image real or virtual?





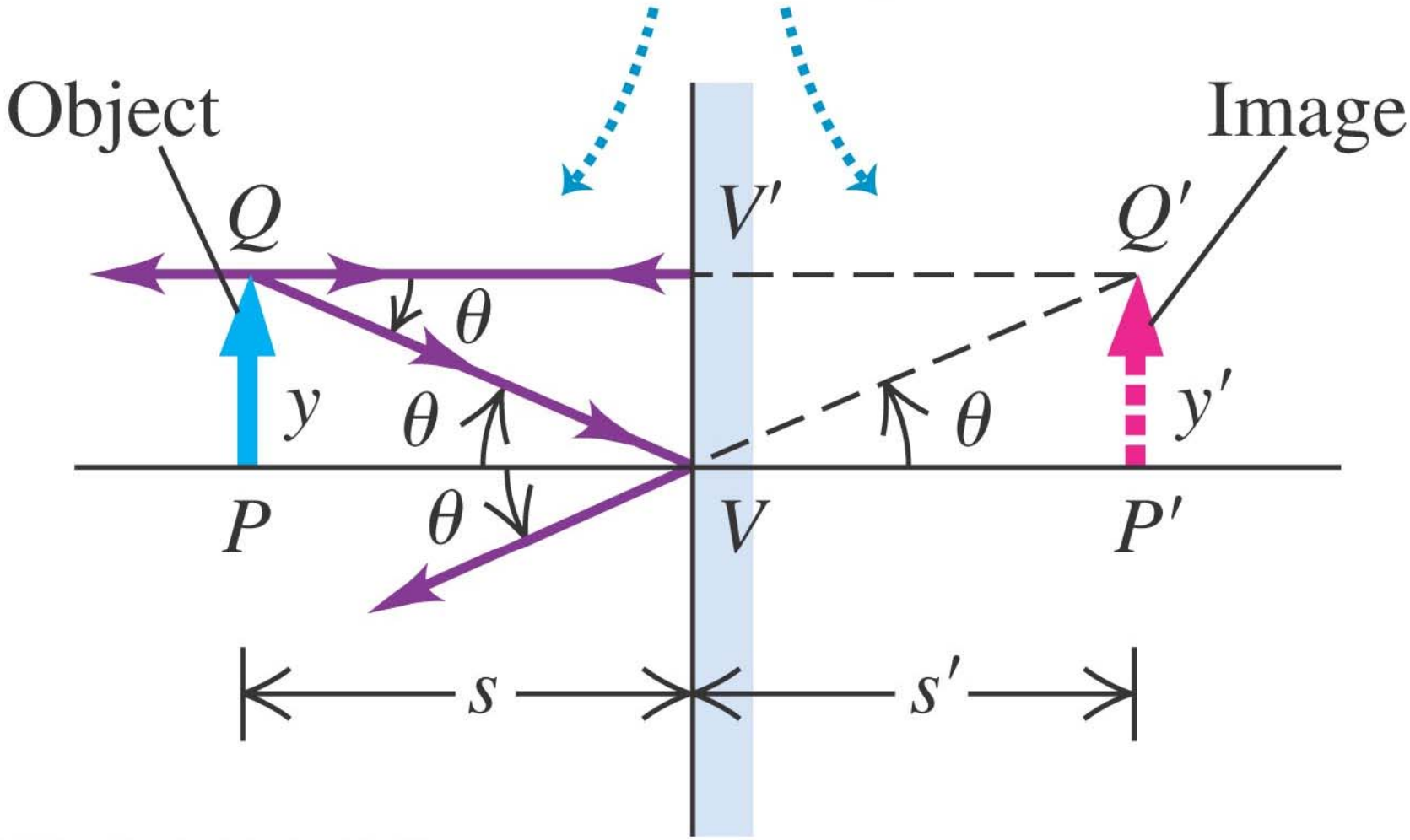
A. real in both cases

B. virtual in both cases

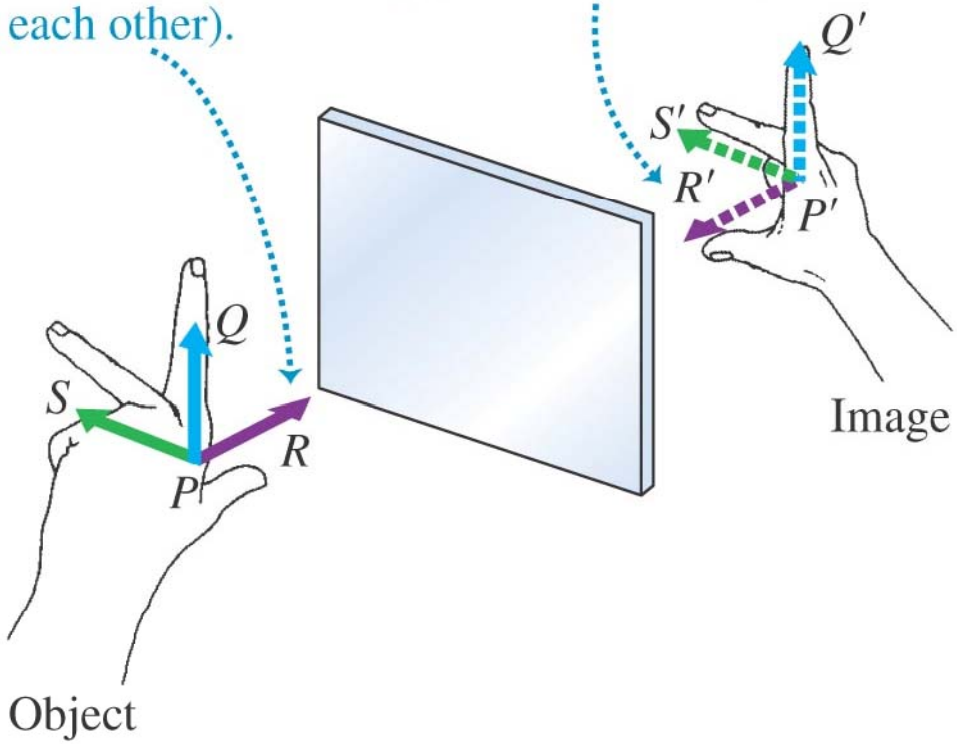
C. real for the water and virtual for the mirror

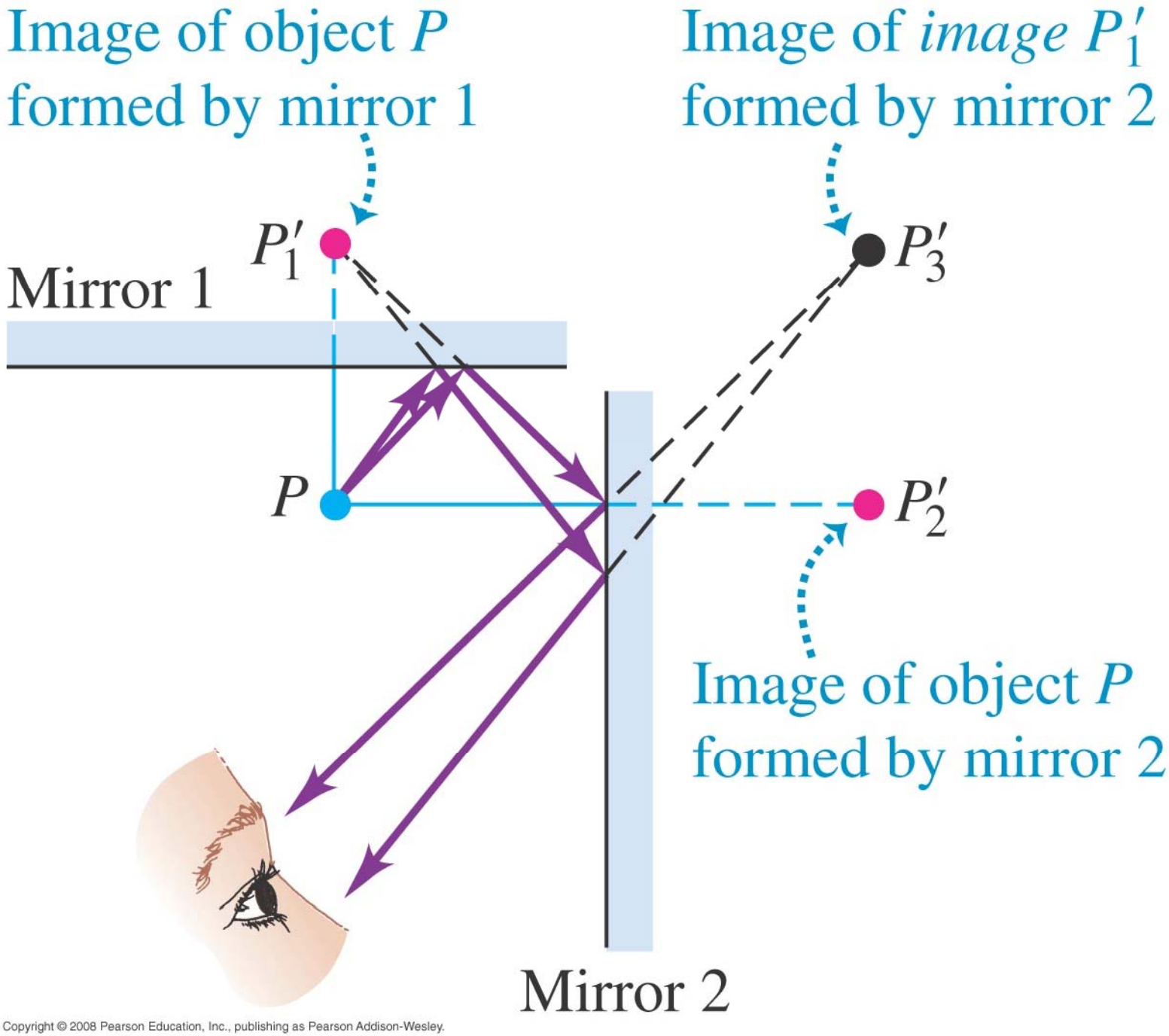
D. virtual for the water and real for the mirror

For a plane mirror, PQV and $P'Q'V$ are congruent, so $y = y'$ and the object and image are the same size (the lateral magnification is 1).

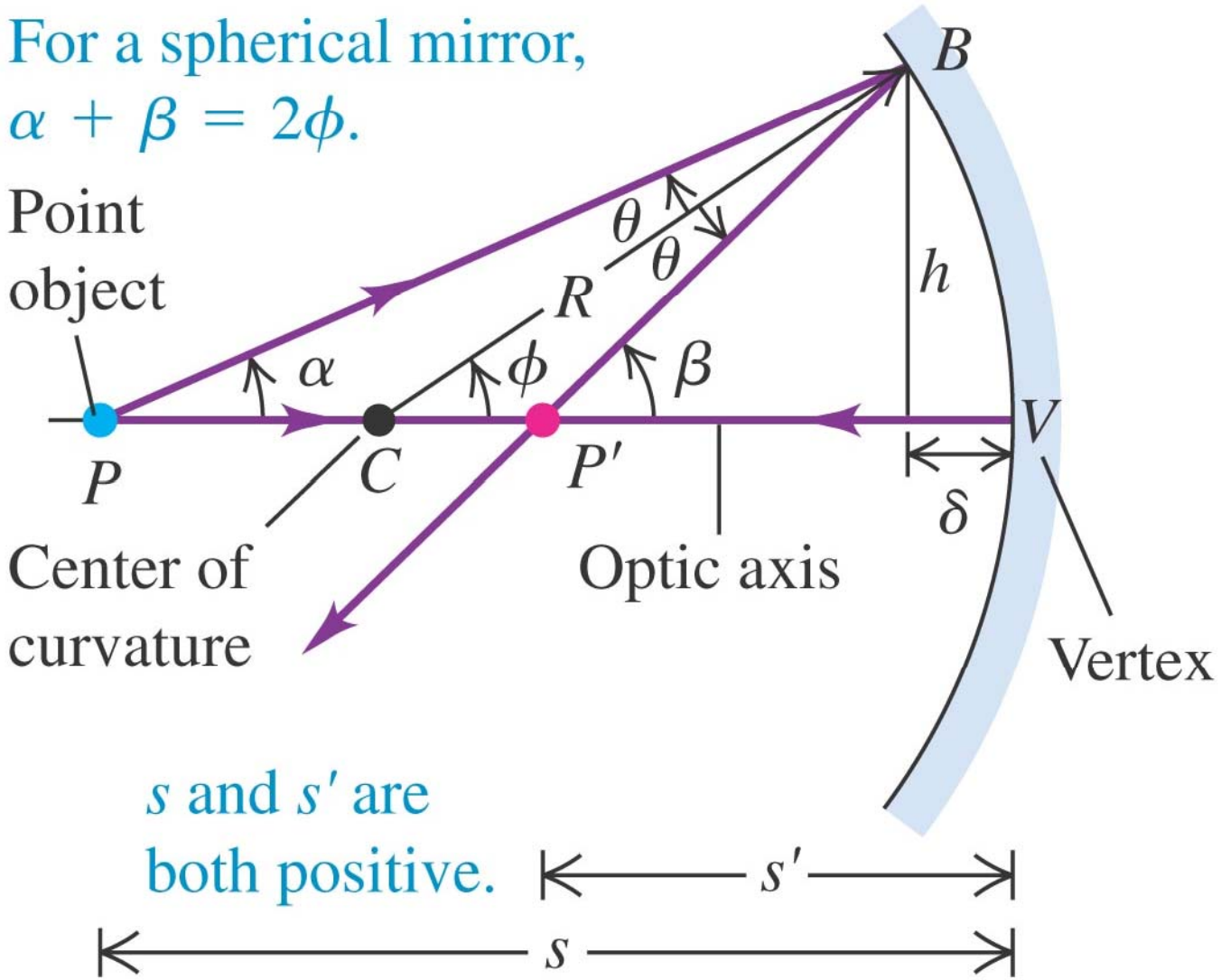


An image made by a plane mirror is reversed back to front: the image thumb $P'R'$ and object thumb PR point in opposite directions (toward each other).

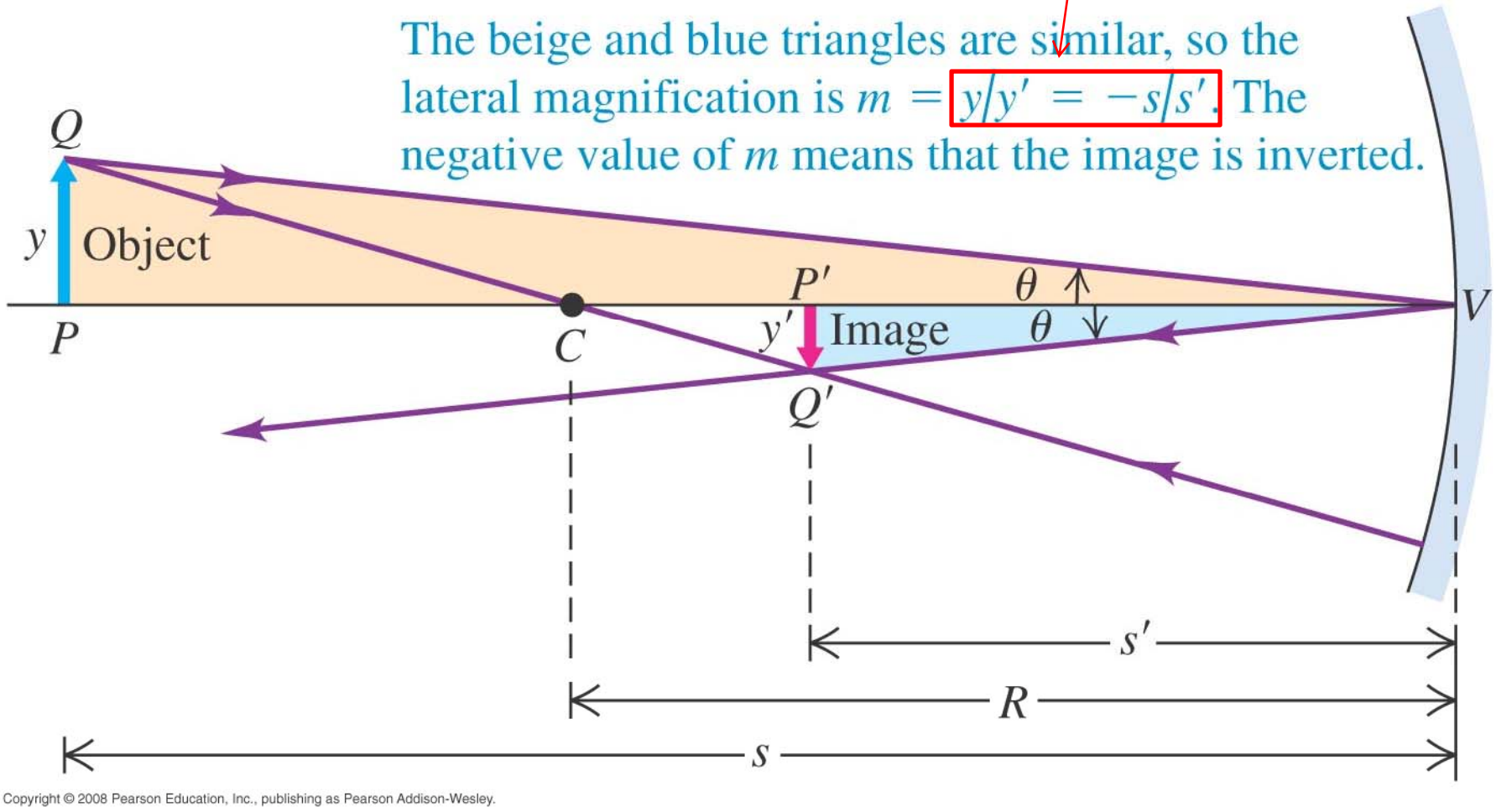




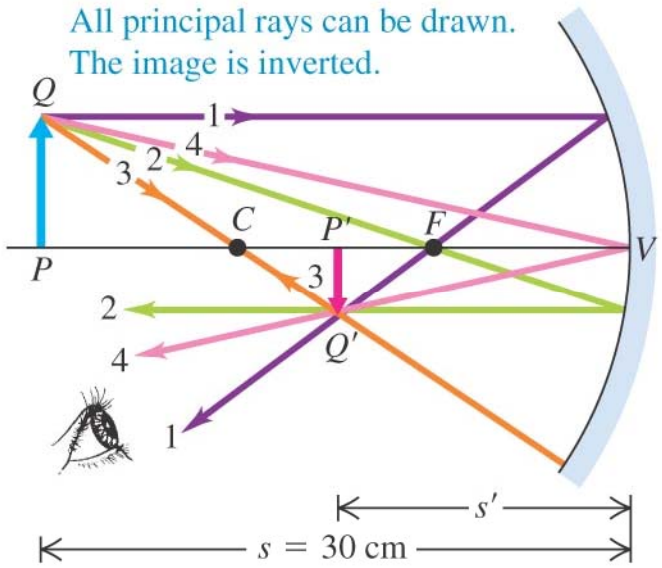
(a) Construction for finding the position P' of an image formed by a concave spherical mirror



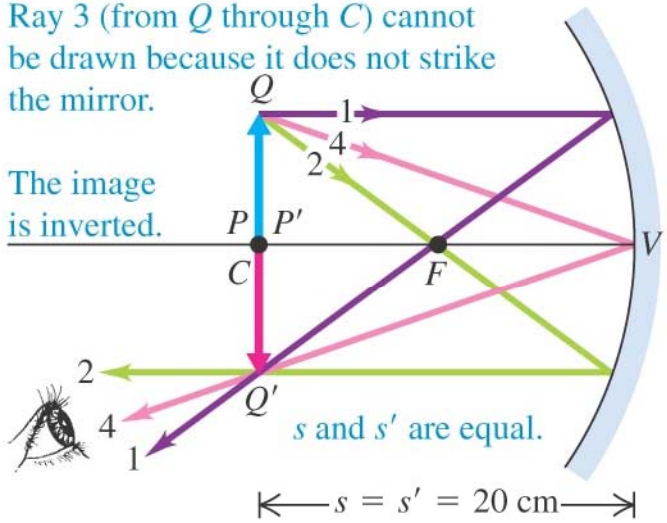
Note typo in book!



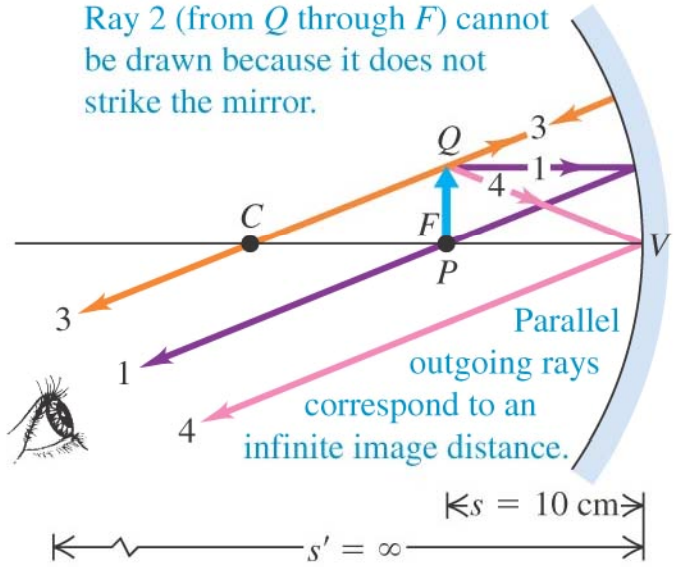
(a) Construction for $s = 30$ cm



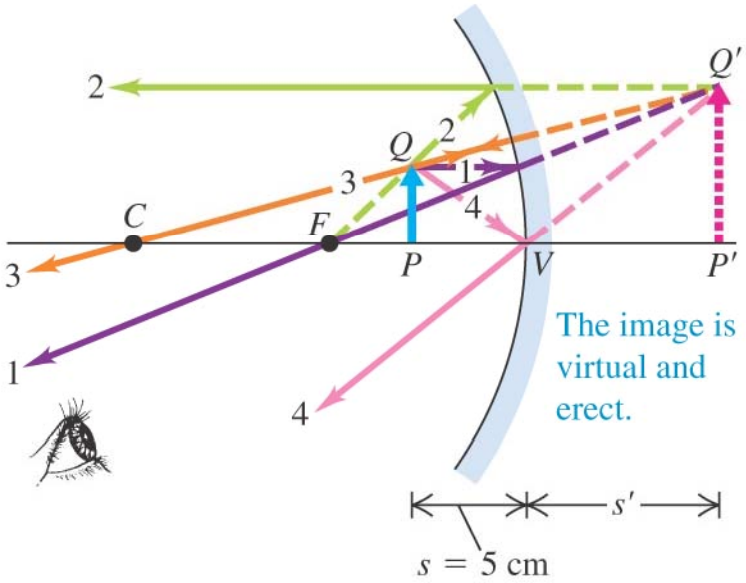
(b) Construction for $s = 20$ cm



(c) Construction for $s = 10$ cm



(d) Construction for $s = 5$ cm



Q34.6

An object is placed 0.5 m away from a concave mirror of focal length +1.0 m. The image formed by the mirror is

A. real and larger than the object.

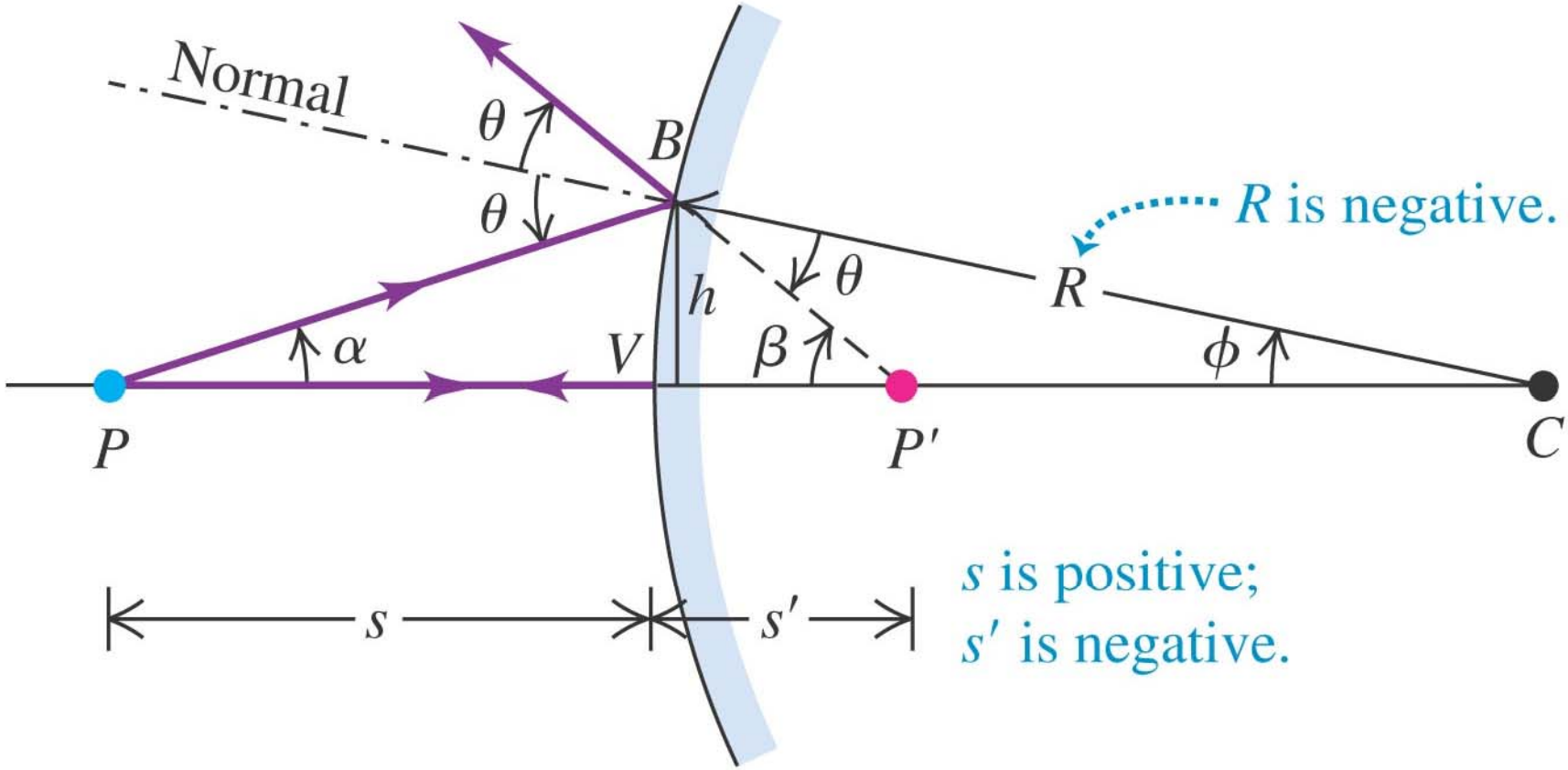
B. real and smaller than the object.

C. real and the same size as the object.

D. virtual and larger than the object.

E. virtual and smaller than the object.

(a) Construction for finding the position of an image formed by a convex mirror



(b) Construction for finding the magnification of an image formed by a convex mirror