Geometric Optics: Review

⚠ This is a preview of the draft version of the quiz

Started: Nov 4 at 10:11am

Quiz Instructions

Question 1	1 pts

For a plane mirror, a normal line is an imaginary line that is drawn perpendicular to the surface of the mirror at a point where a light ray strikes. The angle of incidence and the angle of reflection are measured with respect to the normal line. Which of the following is always true?

- ⊙ the angle of incidence is equal to the angle of reflection

- ⊙ the angle of incidence is less than the angle of reflection

- ⊙ the angle of incidence is greater than the angle of reflection

- ⊙ the angle of incidence can be greater than, equal to or less than the angle of reflection

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Question 2	1 pts

If you stand 2.5 m from a plane mirror, how far in meters from you would your image in the mirror appear?

○ 7.5

○ 10

○ 2.5

○ 5

Question 3

1 pts

Diamonds get their sparkle due to total internal reflection. Once light enters the diamond, if the diamond is cut well, the light will strike the internal surface of the diamond at angles larger than the critical angle, which prevents the light from escaping the diamond and keeps it bouncing around inside of the gem. If incident light falls onto a diamond at an angle of 45 degrees, it will refract at an angle of 17 degrees as it enters the diamond. What is the index of refraction of the diamond?
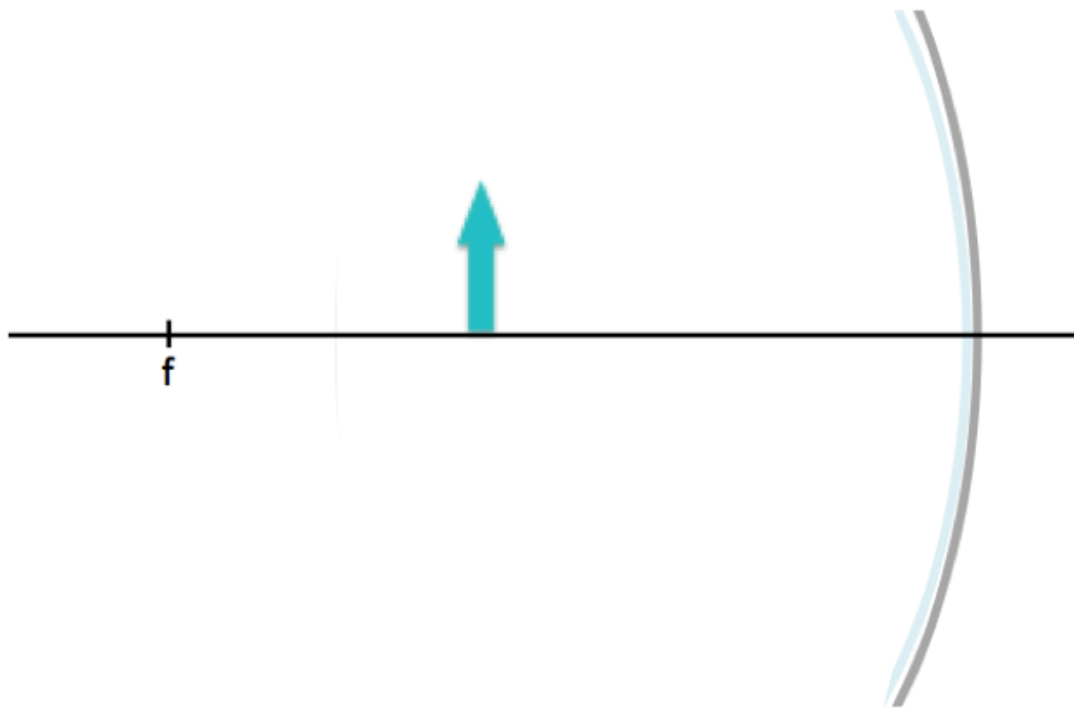
○ 2.42

○ 2.03

○ 1.43

○ 1.75

Question 4

1 pts

A light ray moves from air into a piece of glass. Check all of the following that are true for the light ray as it enters the glass.

- ☐ the light bends away from the normal

- ☐ the light slows down

- ☐ the light speeds up

- ☐ the light bends toward the normal
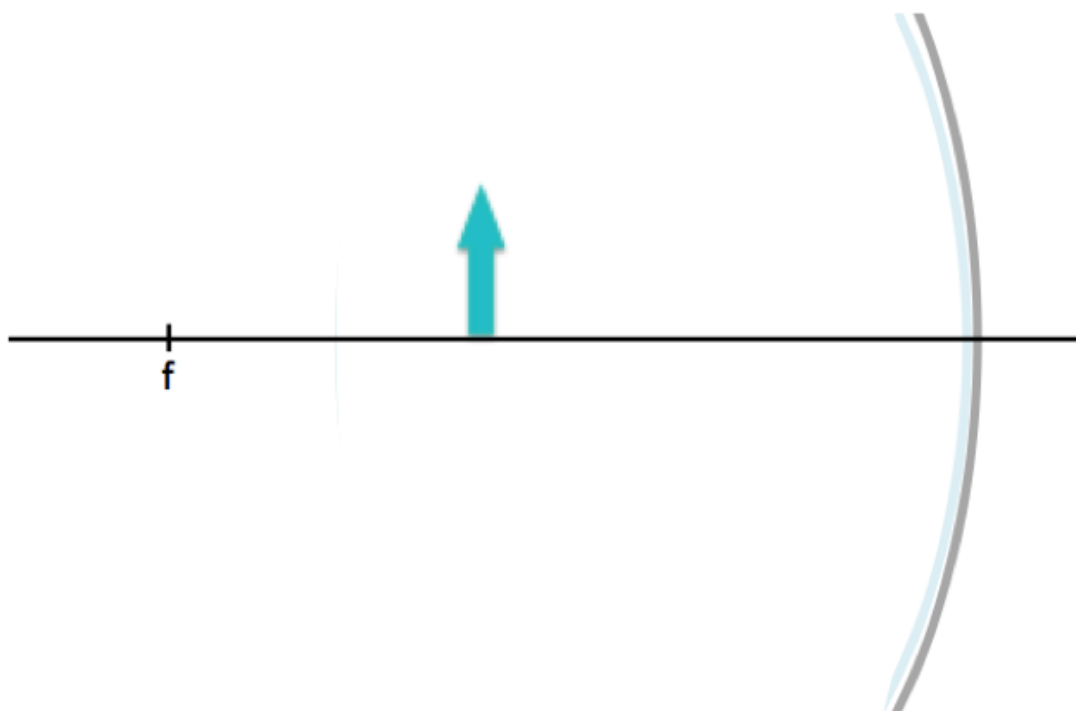
Question 5

1 pts

Consider the concave mirror above. Which of the following is true for the image formed? Choose all that apply.

☐ the image is upright

☐ the image is real

☐ the image is inverted

☐ the image is enlarged

☐ the image is virtual

☐ the image is reduced

Question 6

1 pts

The focal length of the mirror is 25 cm. If the object is placed at 15 cm, how far in cm from the mirror does the image appear?

☐ 37.5

☐ -37.5

☐ -42

☐ 42

Question 7

1 pts

The crest of a continuous wave moves at a speed of 2.5 m/s down a tightly coiled spring. If there are 4 crests passing a specific point every second, what is the wavelength in meters of the waves?

- ☐ .25
- ☐ .625
- ☐ .5
- ☐ .1

Question 8

1 pts

At a sporting event, the crowd does "the wave" as they cheer on the teams playing. Which of the following terms could be used to describe the wave?

- ☐ mechanical wave
- ☐ electromagnetic wave
- ☐ longitudinal wave
- ☐ transverse wave

Question 9   1 pts

For the lens below, an object with a height of 6 cm is placed 8 cm in front of a convex lens with a focal length of 12 cm.
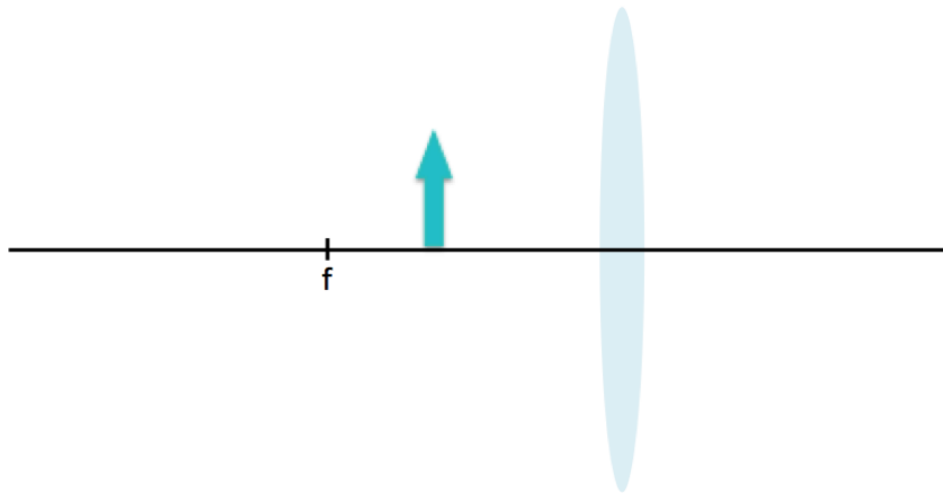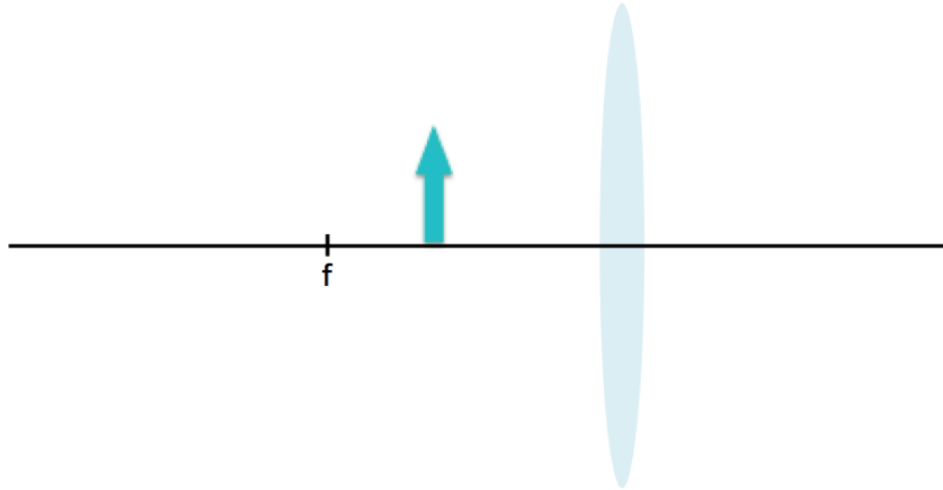

Which of the following apply to the image formed by the mirror above?

☐ the image is virtual

☐ the image is inverted

☐ the image is upright

☐ the image is real

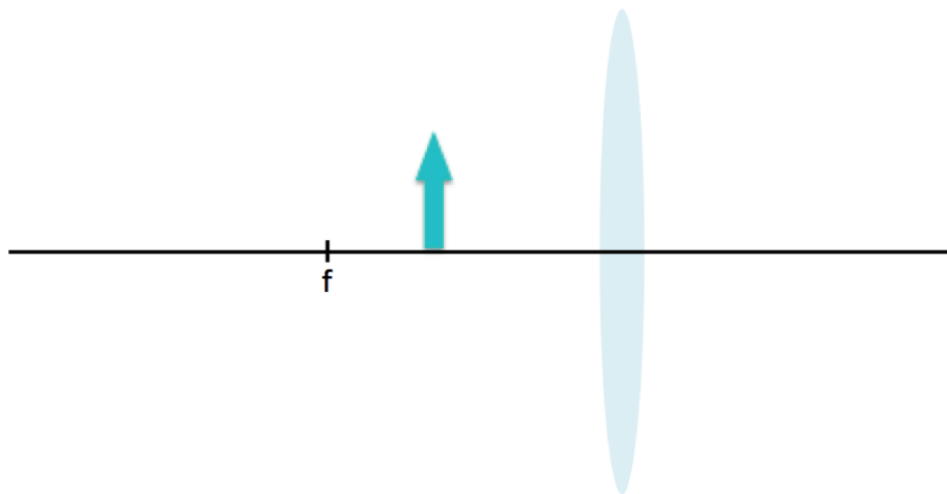☐ the image is enlarged

☐ the image is reduced

Question 10

1 pts

How far in cm from the lens will the image appear?

For the lens below, an object with a height of 6 cm is placed 8 cm in front of a convex lens with a focal length of 12 cm.

- [ ] -32
- [ ] -24
- [ ] -12
- [ ] -8

Question 11

1 pts

For the lens below, an object with a height of 6 cm is placed 8 cm in front of a convex lens with a focal length of 12 cm.

If you'd like for the object to appear twice as large as it is, how far in cm from the lens should you place the object?
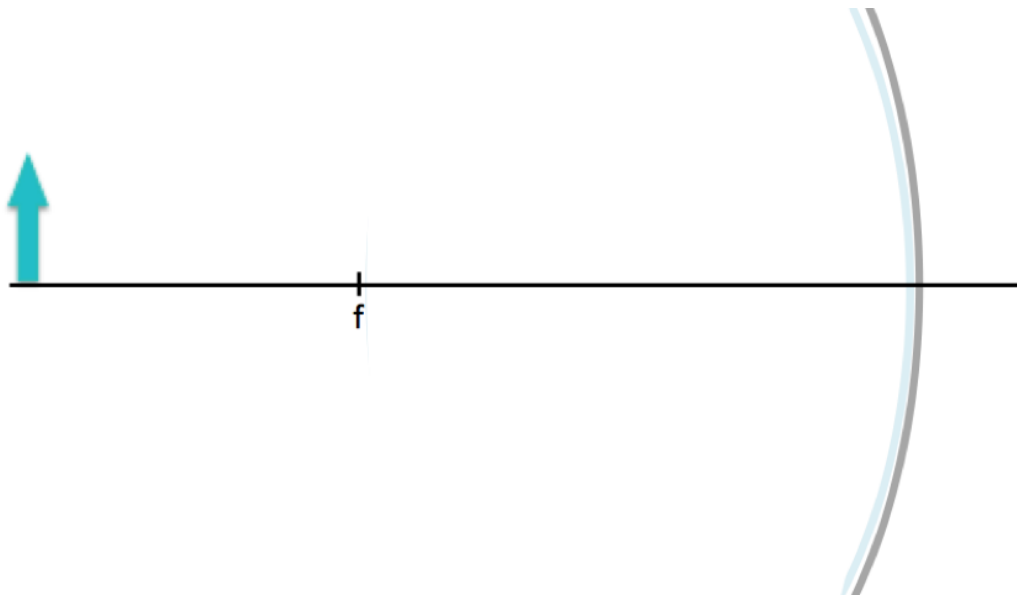
☐ 8

☐ 24

☐ 18

☐ 12

Question 12   **1 pts**

For the mirror below, an object 12 cm tall is placed 25 cm away from a concave mirror with a focal length of 18 cm.
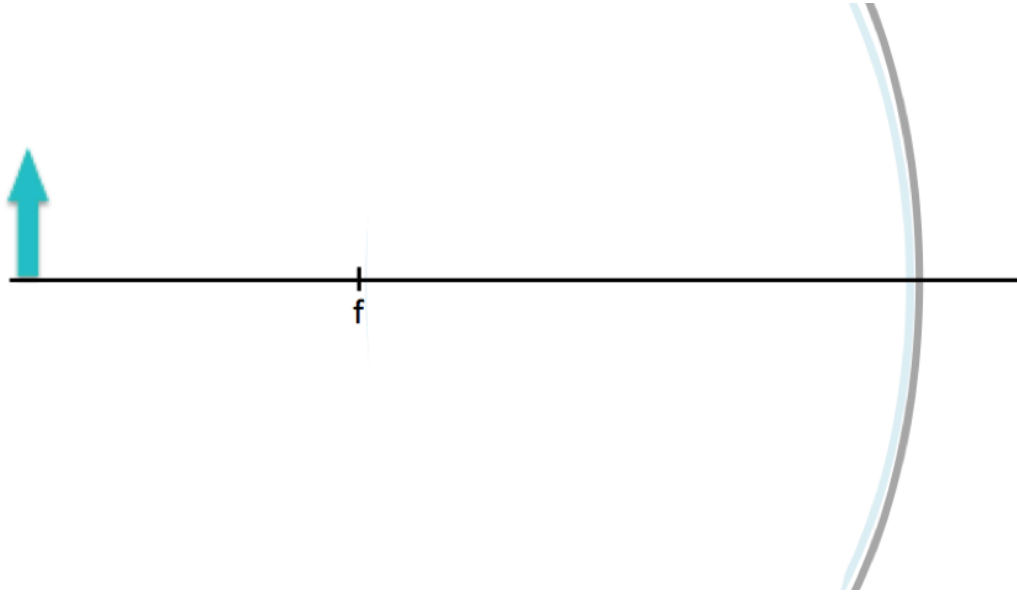
Which of the following apply to the image formed by the mirror above?

☐ the image is upright

☐ the image is virtual

☐ the image is real

☐ the image is enlarged

☐ the image is inverted

☐ the image is reduced

Question 13   1 pts

For the mirror below, an object 12 cm tall is placed 25 cm away from a concave mirror with a focal length of 18 cm.
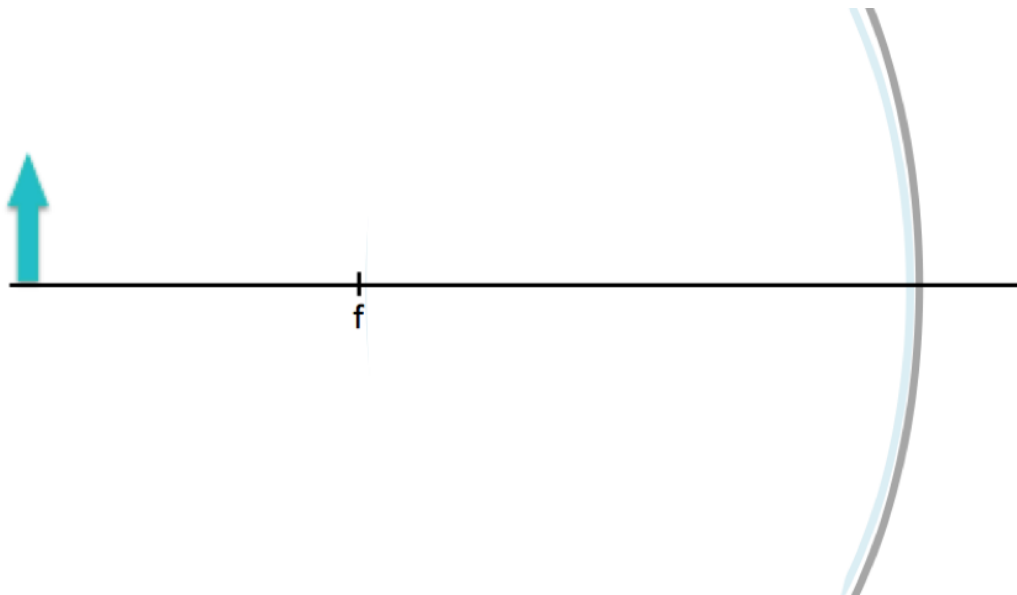

How far in cm from the mirror will the image appear?

- ☐ 32.3

- ☐ 64.3

- ☐ 56.7

- ☐ 23.4

Question 14

1 pts

For the mirror below, an object 12 cm tall is placed 25 cm away from a concave mirror with a focal length of 18 cm.
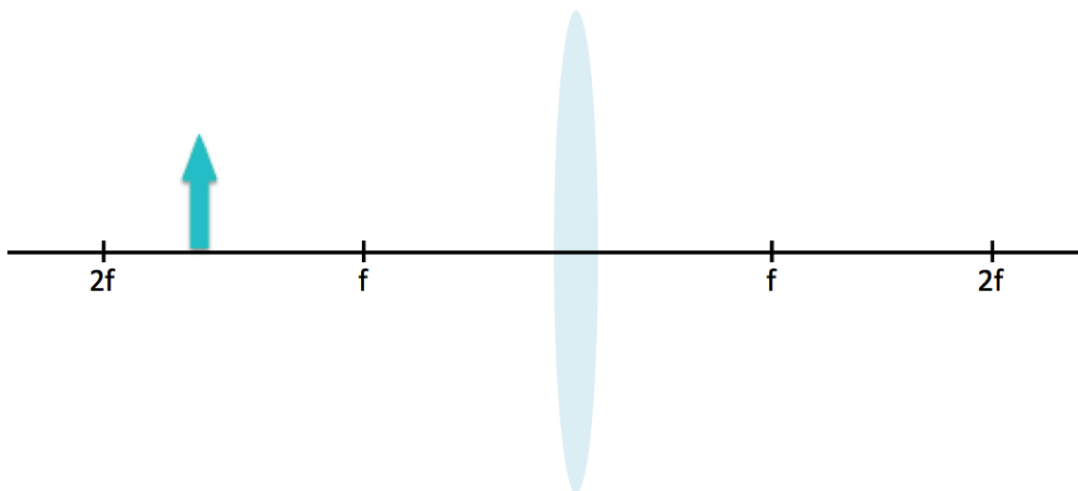
How tall in cm will the image appear?

- [ ] -8.3

- [ ] -23.4

- [ ] -30.9

- [ ] -18.5

Question 15

1 pts

For the lens below, an object 15 cm tall is placed 34 cm away from a convex lens with a focal length of 20 cm.
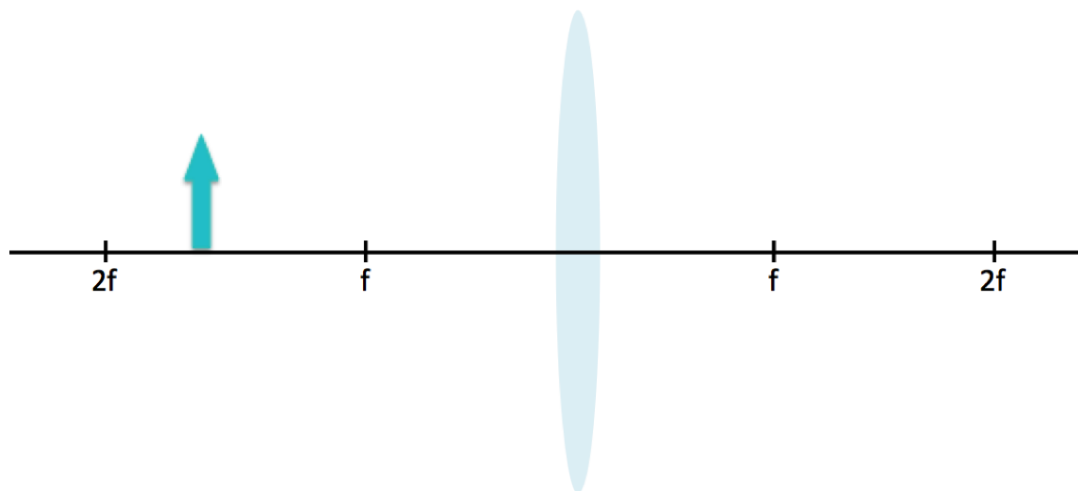
Which of the following apply to the image formed by the mirror above?

☐ the image is upright

☐ the image is enlarged

☐ the image is reduced

☐ the image is inverted

☐ the image is real

☐ the image is virtual

Question 16   1 pts

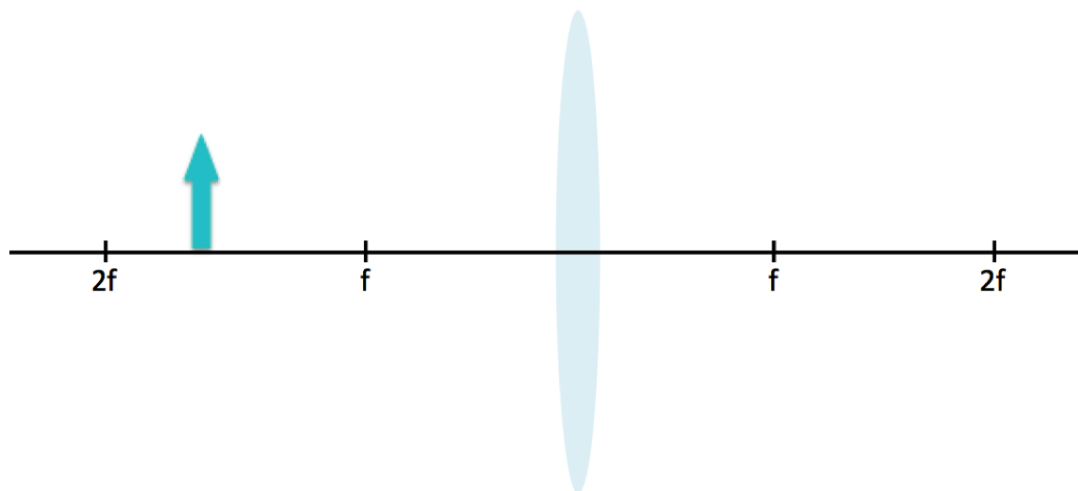For the lens below, an object 15 cm tall is placed 34 cm away from a convex lens with a focal length of 20 cm.

How far in cm from the lens will the image appear?

- ☐ 24.1

- ☐ 48.6

- ☐ 18.7

- ☐ 46.1

Question 17

1 pts

For the lens below, an object 15 cm tall is placed 34 cm away from a convex lens with a focal length of 20 cm.

If you want to project an image onto a screen with this lens that is smaller than the object, where should you place the object?

☐ between the lens and f

☐ past 2f

☐ exactly at f

☐ exactly at 2f

Not saved

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