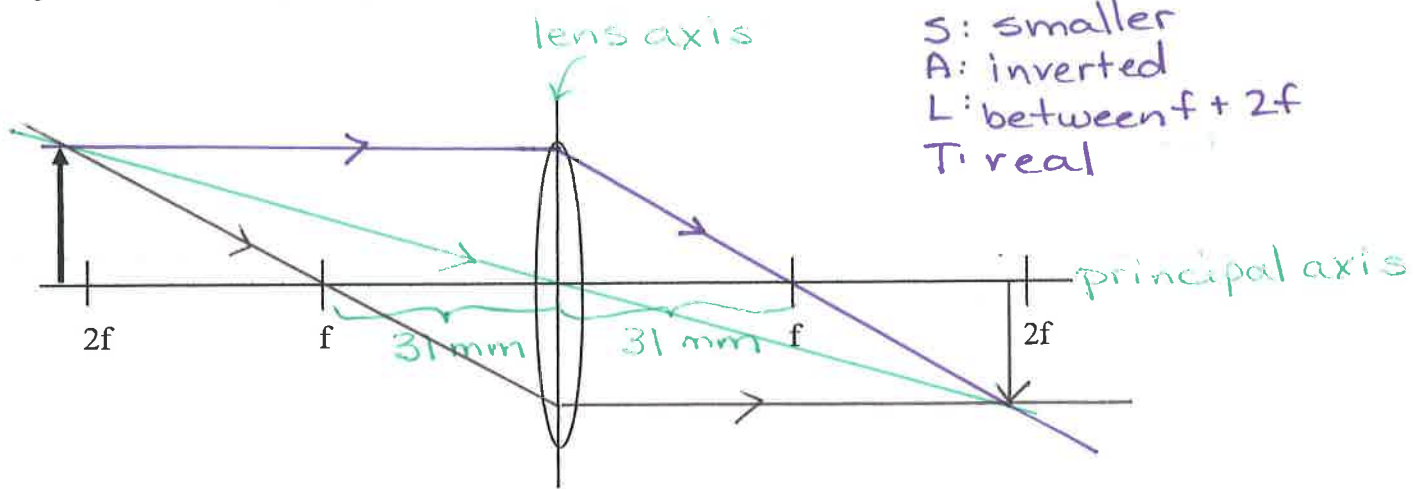
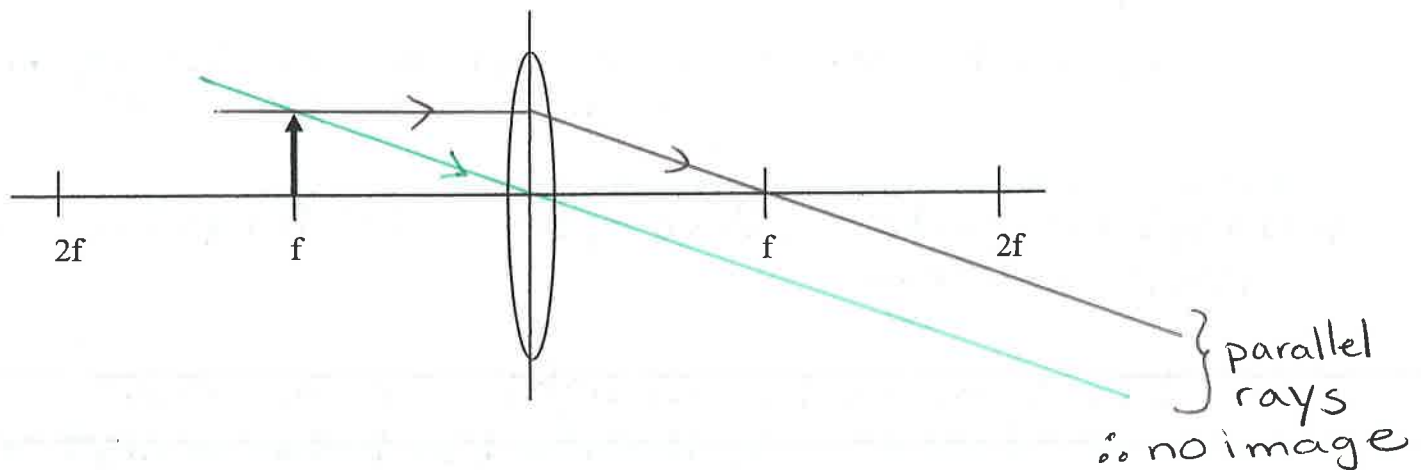


20. For the following converging lens system, measure the focal length. Label the principal axis and the lens axis. Use the rules for drawing ray diagrams (Parallel Ray, Centre Ray and Focal Ray) for converging lenses to find the resulting image. Describe the image using SALT (Size, Altitude, Location, and Type).



21. For the following converging lens system, draw a ray diagram to show why no focused image is formed (i.e. you should be able to show that a Parallel Ray and a Centre Ray do not converge in this case).



22. An object located 20 cm away from a converging lens produces a focused image 15 cm away from the lens on the other side of the lens.

- What is the magnification of this lens system? (omit)
- What kind of image is produced (real or virtual)?
- Is the image upright or inverted?
- What is the focal length of the lens? (omit)

b. real (object & image on opposite sides)
c. inverted (see 20. above)

23. A converging lens with a focal length of 15 cm has a 50 cm tall object placed 30 cm away from the lens.

- (a) Where will the focused image be produced? (omit)
- (b) What kind of image is produced, and what is its attitude?
- (c) What is the magnification of this lens system? (omit)
- (d) How tall is the image? (omit)

b. real image, inverted

24. Give 2 common examples of refraction phenomena.

mirages

apparent sunset (sun appears on horizon even after it has set)

25. Give 2 examples of applications that make use of total internal reflection.

Sparkling Diamonds, fibre optics (TV, telephone),
Binoculars

26. Why does wearing a black shirt outdoors make you warmer? If you wore a white shirt and stood beside a person in a black shirt what would happen?

Black absorbs all light whereas white reflects all light. Black shirt will get even warmer.

27. Provide one example of how additive and subtractive colour theories play a role in your daily life (one example each).

Additive Colour → spot lights, visible light
Subtractive Colour → paint, clothing

28. A physicist painter considers there to be two sets of primary colours. Why?

Subtractive: Cyan, magenta, yellow
Additive: Red, blue, green

} Additive primary colours are subtractive secondary colours

29. Compare the additive colour theory to the subtractive colour theory.

Additive - white light is composed of different colours; primary colours are blue, green, red

Subtractive - matter absorbs different colours; black absorbs all colours & white reflects all colours
primary are cyan, magenta, yellow

31. List the function for each part of the eye.

a) cornea

b) pupil

c) iris

d) lens

e) retina

↳ focuses the light in your eye

allows light to pass into eye

↳ controls the size of the pupil & the amount of light entering eye

↓ helps in focussing by adjusting the focal length

↳ projection screen for light rays entering eye