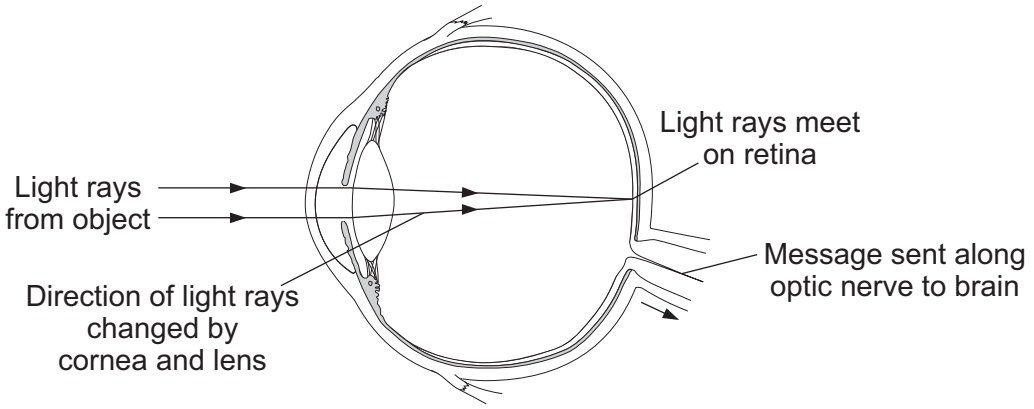
5 (a) The diagram shows the inside of the eye of a person with perfect vision.



Complete the sentence.

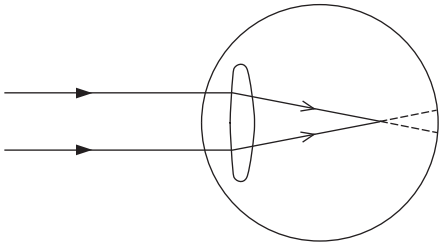
The process by which the cornea and lens change the direction of the light is called

..... .

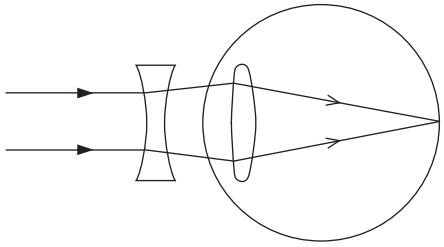
(1 mark)

5 (b) (i) Not everyone has perfect vision.
A **short-sighted** person can only clearly see objects which are close.
Light from distant objects meets in front of the retina.

The diagrams show how an additional lens will correct **short-sightedness**.

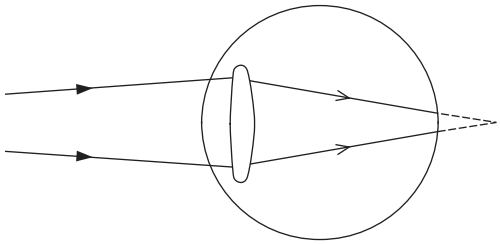


Uncorrected vision



Vision corrected with a diverging lens

The following diagram shows what happens when light from a close object enters the eye of a **long-sighted** person.



Light fails to come to focus on the retina

What type of additional lens will correct the vision of a **long-sighted** person?

.....

(1 mark)

5 (b) (ii) The additional lens changes the direction of the light before it enters the eye.

Why does this correct the person's vision?

.....

.....

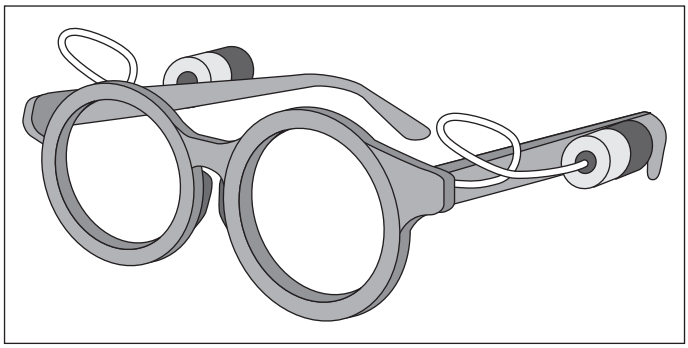
(1 mark)

Question 5 continues on the next page

5 (c) Read this passage from a magazine.

Professor's clear vision for the future

There are billions of poor people in the world who cannot see clearly and cannot afford the cost of having their eyesight corrected. A professor has invented adjustable glasses. They are cheap and a few minutes is all it takes for you to adjust them to suit your eyes.



When the adjusting screw is turned in one direction, silicone is pushed into the flexible lens which becomes thicker in the centre. Turning the screw in the opposite direction pulls silicone out, and the lens becomes thinner at the centre than at the edge.

Explain how these glasses are adjusted for a **short-sighted** person and how this adjustment allows the person to see distant objects clearly.

.....

.....

.....

.....

.....

(3 marks)

6