

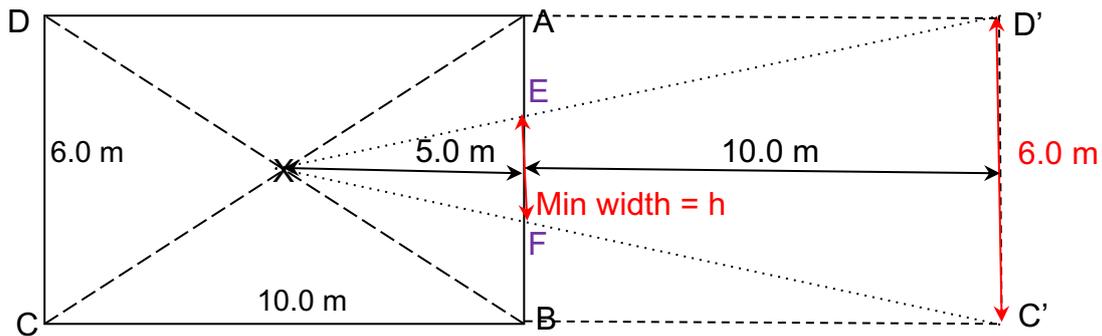


2021 Sec 3 Physics Assignment 2 (Answers)

Reflection

Name: _____ () Class: 3/ ___ Date: _____

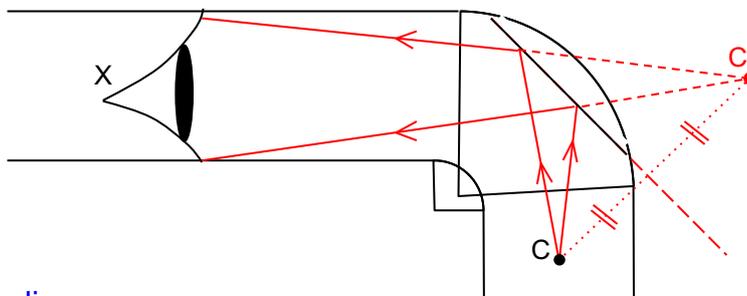
- 1 A girl stands in the centre of a room, X, as shown. Determine the minimum width of a mirror that is placed on the wall AB so that she can see the whole of wall CD in the mirror.



Using similar triangles XEF and XD'C',
 $h / 6.0 \text{ m} = 5.0 \text{ m} / (5.0 \text{ m} + 10.0 \text{ m})$
 $h = 30 \text{ m} / 15 = 2.0 \text{ m} \text{ (2 s.f.)}$

Minimum width of mirror = 2.0 m

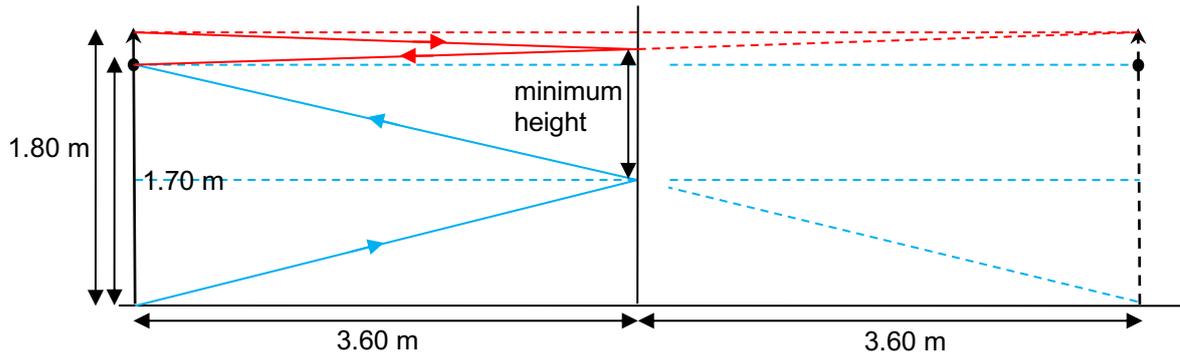
- 2 The diagram below is a scale drawing of a narrow road with a plane mirror mounted across a 90° turn.
- Mark accurately the image I of the car C formed by the reflection in the mirror.
 - Indicate on the diagram, the relationship between the object and the image distance from the mirror.
 - Draw a cone of light to show how a man at X sees the image I.



Note: for ray diagrams

- Use pencil & ruler
- Show arrows on every light ray
- Draw accurate construction lines with dashed lines
- Use protractor/set square to ensure right angles!

- 3 A man of height 1.8 m stands 3.6 m in front of a mirror. His eyes are at a height of 1.7 m from the ground.



- (a) How far is the man from his image? $2 \times 3.6 \text{ m} = \underline{7.2 \text{ m}}$
- (b) How tall is the mirror image of the man? $\underline{1.80 \text{ m}}$
- (c) What is the minimum height of a mirror which will allow the man to see his whole body? $\frac{1}{2} \times 1.80 \text{ m} = \underline{0.90 \text{ m}}$
- (d) How high from the floor must the mirror be placed? $\frac{1}{2} \times 1.70 \text{ m} = \underline{0.85 \text{ m}}$

Note: Show all calculation steps!

Refer simulation at <https://www.geogebra.org/m/pCTXpz7S>

- 4 A security guard at point A in a museum uses a mirror to keep watch on an exhibit at point P. The exact location of the exhibit is marked with a +.

