COORDINATE GEOMETRY EXERCISE.

1. A laser beam shines from point A (0, -4) along the line y = 2x - 4The beam hits a glass block PQRS at point B(4, 4) and the beam is "refracted" or "bent" as it passes through the glass block. The beam comes out of the glass block at C (8, 6)

Find the equation of the line BC

2. When the beam emerges from the glass block, it refracts or bends again and continues on a path parallel to its original path AB. The beam goes on to meet the mirror LM at point D.

Find the coordinates of D

Write the equation of the mirror LM.

Find the equation of CD.

3. On hitting the mirror, the beam reflects off it at the same angle at which it hit the mirror.This beam should go through the point E (10, 18)

Find the equation of DE.

4. There is another mirror passing through point E situated so that the laser beam will reflect **directly back along its own path** to D, C, B and A.

Find the equation of the line on which this mirror is placed.





ANSWERS

COORDINATE GEOMETRY EXERCISE.

1. A laser beam shines from point A (0, -4) along the line y = 2x - 4The beam hits a glass block PQRS at point B(4, 4) and the beam is "refracted" or "bent" as it passes through the glass block. The beam comes out of the glass block at C (8, 6)

Find the equation of the line BC $y = \frac{1}{2}x + 2$

2. When the beam emerges from the glass block, it refracts or bends again and continues on a path parallel to its original path AB. The beam goes on to meet the mirror LM at point D.

Find the coordinates of D(12, 14)Write the equation of the mirror LM.x = 12Find the equation of CD.y = 2x - 10

3. On hitting the mirror, the beam reflects off it at the same angle at which it hit the mirror.

This beam should go through the point E (10, 18)

Find the equation of DE. y = -2x + 38

4. There is another mirror passing through point E situated so that the laser beam will reflect **directly back along its own path** to D, C, B and A.

Find the equation of the line on which this mirror is placed.

$$y = \frac{1}{2}x + 13$$