## COORDINATE GEOMETRY EXERCISE.

1. A laser beam shines from point $A(0,-4)$ along the line $y=2 x-4$

The beam hits a glass block PQRS at point $\mathrm{B}(4,4)$ 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 $C D$.
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 $\mathrm{E}(10,18)$
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 $\mathrm{D}, \mathrm{C}, \mathrm{B}$ 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 $\mathrm{A}(0,-4)$ along the line $\mathrm{y}=2 \mathrm{x}-4$

The beam hits a glass block PQRS at point $\mathrm{B}(4,4)$ 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 $B C \quad y=1 / 2 x+2$
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. $\quad \mathrm{x}=12$
Find the equation of $C D . \quad y=2 x-10$
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 $\mathrm{E}(10,18)$
Find the equation of DE .

$$
y=-2 x+38
$$

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

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

$$
y=1 / 2 x+13
$$

