

Last Look

First term

Mr. Mohamed Taha

Write the scientific term:

- 1- The value of change of an object's speed in one second.
- 2- A flat and gaseous round disk that formed the solar system.
- 3- A mirror that forms a virtual, upright and small image for an object.
- 4- It contributes in genes exchanging between the two homologous chromosome's chromatids and distributing them in the gametes.
- 5- It is located in one of the spiral arms of the Milky Way.
- 6- Asexual reproduction occurs by using plant organs except seeds.
- 7- The line joining between the two centers of curvature of lens passing by the optical center.
- 8- It is the phenomenon of the light bouncing off in same medium when it meets the reflecting surface.
- 9- The angle between the reflected light ray and the normal.
- 10- The expansion of the universe and the atomic particles merged together producing helium and hydrogen.

- 11- The moving object covers equal distances at equal periods of time.
- 12- The point of connection of two chromatids together.
- 13- The change of displacement relative to time.
- 14- A point located inside the lens on the principal axis in the mid distance between its faces.
- 15- It contains genetic material from each parent when it grows; it gives a new offspring whose traits combine each parent's traits.
- 16- It is the change in the object's speed in one second.
- 17- It is any straight line that passes by the center of curvature of the mirror and any point on its surface except the pole of the mirror.
- 18- A phase in which chromosomes pairs arrange on cell's equator.
- 19- The force that keeps the continuity of planets rotation in their orbits.
- 20- The value of an object's speed determined in relation to an observer.
- 21- The force of attraction between the masses of two objects is directly proportion with the amount of their masses and inversely with the square of distance between them.
- 22- The total distance that a moving object covers divided by the total time taken to cover this distance.
- 23- The point of collection of the parallel rays after being reflected from the concave mirror and can be received on a screen.
- 24- A phase where some processes occur upon which the formation of a complete set of chromosomes that equal in numbers with the parental cell.
- 25- The space that contains all the galaxies, stars and planets.
- 26- The image that can't be received on a screen.
- 27- A phenomenon that occurs at the end of prophase 1 and contributes in genes exchange.
- 28- A disease resulting from the formation of the image behind the retina of the eye.

- 29- The biggest star that can be seen clearly by people on the earth surface.
- 30- The unit that is used to measure the distances between the celestial bodies.
- 31- Angle of incidence = Angle of reflection.
- 32- The shortest straight line between two positions of a moving object.
- 33- The revolving of the earth around its axis in a period of time.
- 34- The ability of some animals to compensate their missing parts.
- 35- Cells that lead to the formation of gametes that contain N chromosomes.
- 36- The point of collection of parallel rays in the concave mirror.
- 37- A phase in which some important biological process occur to prepare the cell for division and genetic material in the cell is doubled.
- 38- The point that is in the middle of the reflective surface of the mirror.
- 39- The combination of the male and the female gametes to form zygote.
- 40- It is the sun and eight planets revolving around it.
- 41- Twice the focal length of a spherical mirror.
- 42- The change of an object's location as time passes according to the location of another object.
- 43- A type of reproduction which considered a source of genetic variation.
- 44- A disease causes darkness of the eye lens.
- 45- An equipment was launched to the space; it allows astronomers an opportunity to study the evolution of the universe after the big bang.
- 46- A process in which the living organism produces individuals with hereditary traits different from the parents.
- 47- A cell division that occurs in the somatic cells and results in the growth of the living organism.

Give reasons:

- 1- Sexual reproduction is the source of variation between individuals.
- 2- The shortsighted person requires medical glasses with concave lenses.
- 3- Asexual reproduction produces offspring identical to the parents.
- 4- The perpendicular incident light ray on the plane mirror reflects on itself.
- 5- The continuous expansion of space.
- 6- The constancy of the Earth's rotation in an orbit around the sun.
- 7- The difference in the day due to the difference of the planet.
- 8- The difference in the year due to the difference of the planet.
- 9- Force and acceleration are vectors physical quantities.
- 10- The long sight is treated by suitable convex lens.
- 11- Starfish continuous alive even a part of its body is cut.
- 12- The moving car seems stable to the observer moves with the same speed and direction.
- 13- The convex lens has two centers of curvatures, while the convex mirror has only one centre.
- 14- The uniform velocity of a car cannot be obtained practically.
- 15- It is impossible to obtain real image by using concave lens.
- 16- The focal vertex of the thick convex lens is less than the thin convex lens.
- 17- Interphase stage occurs before starting cell division.
- 18- The important of the crossing over phenomenon the first meiotic division.
- 19- Zygote contains the normal number of chromosomes of the organism.
- 20- The object that is placed at the focus of convex lens does not form an image.
- 21- Concave mirrors are used in solar ovens.

22- A convex mirror is put at the left side of the driver of the car.

23- The shortest year is on mercury planet.

Complete the following:

- 1- Speed measuring unit is..... and the acceleration measuring unit is.....
- 2- The somatic cells divide by while the reproductive cells divide by
- 3- The crossing over phenomena takes place duringof the division.
- 4- The stars move in fixed orbits around the centre of the
- 5- The scientist who founds chaos theory that explains solar system formation is
- 6- The genetic material in the nucleus of the cell consists of a number of
- 7- From the examples of asexual reproduction, budding in Fungus
- 8- The chromosomes pairs are arranged in first metaphase in the line of the cell
- 9- Meiosis cell division occurs in the anther of a flowering plant to produce
- 10- The solar system is located in one of the spiral arms of galaxy.
- 11- The longest day is of planet, whereas the shortest one is of
- 12- The incident light ray which is parallel to the principal axis of a concave mirror reflects passing through
- 13- The chromosome chemically consists of nucleic acid called and protein.
- 14- The displacement is considered as quantity, while the mass is considered as quantity.
- 15- The radius of the concave mirror equals of its focal length.

- 16- It is impossible to obtain real image by using the lens or plane
- 17- The spindle fibers are formed during the cell division in And disappear in
- 18- Amoeba reproduces by bread mold fungus reproduces by
- 19- The result of multiplying (a speed of moving object \times time) =
- 20- The cell contains the genetic material which consists of number of
- 21- is the image that can be received on a screen.
- 22- Is structural unit of the universe and our galaxy is
- 23- From types of the asexual reproduction binary fission in budding as in
- 24- The chromosome consists of two connected threads at the Centromere point, each thread is called
- 25- Are divided by meiosis which leads to the formation of
- 26- rotates around the sun once every 12 earthly years.
- 27- Within minutes of the big bang, the atomic particles merged together producing and gases.
- 28- Meiosis division occurs in living organisms that reproduce by
- 29- The most important vision defects are and

Problems:

- 1- A convex lens with a focal length of 10 cm , an object was placed at a distance of 20 cm from the lens. Assign the distance of the object's image from the lens and mention its properties.
- 2- A race car can move from stationary position and its speed reaches 100 kilometers through 20 seconds. Calculate the acceleration of the car.

3- A body started to move from point x to point A covering a distance of 30 meters to the north in 20 seconds, then it moves 60 meters eastward to point b within 30 seconds then it moves 30 meters southward to point c within 10 seconds.

Calculate: 1- the total distance covered by the body

2- the total time taken by the body 3- the average velocity 4- the average speed

4- A car moves in straight line, if its speed changes 5m/sec to 10m/sec within 5 seconds. Find the acceleration and its kind.

5- An object is placed in front of convex lens at distance of 6 cm. knowing that the focal length of this lens is 3 cm.

1- Determine by drawing the position of the formed image

2- Mention the characteristics of such image

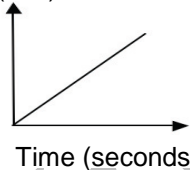
6- If the number of chromosomes in a human pancreatic cell is 23 pairs of chromosomes. What is the number of chromosomes in the following cells:

- Skin - sperm - fertilized ovum

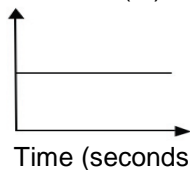
Choose the correct answer:

1- Which of the following graphical relations represents the moving of the body by uniform acceleration?

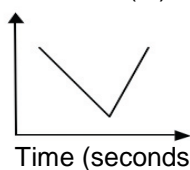
Speed (m/s)



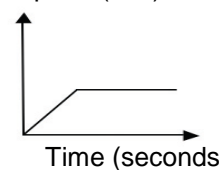
Distance (m)



Distance (m)

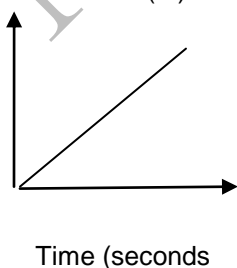


Speed (m/s)

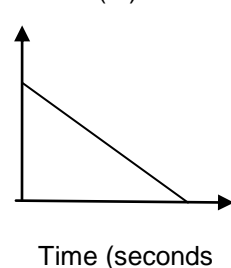


2- Which of the following graphs represent the movement of an object at constant speed?

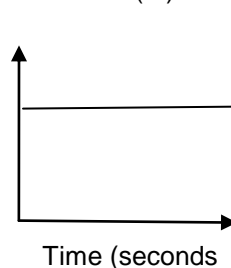
Distance (m)



Distance (m)



Distance (m)



3-The two factors can be used to describe the body motion are:

- 1- Speed and time
- 2- distance and time
- 3- Area and time
- 4- displacement and speed

4- The value of the speed $(v) = \frac{d_1+d_2+d_3}{t_1+t_2+t_3}$

That means the produced speed is Speed

- 1-average
- 2-increasing
- 3- nail
- 4-decreasing

5- A concave lens is placed in the passage of sun rays; a very small image for the sun is formed at a distance 5 cm from the optical centre of the lens, if this lens is used to form an equal image for a body, what is the distance between the body and the optical centre of the lens?

- 1- 5 cm
- 2- 10 cm
- 3- 50 cm
- 4- 60 cm

6- In which of the following cases the lift rider feels weightlessness phenomenon

- 1-when the lift ascends upwards with uniform acceleration
- 2-when the lift ascends upwards with uniform acceleration
- 3-when the lift descends with uniform velocity
- 4- When the lift falls

Various questions:

1- Draw a diagram to illustrate the image formed when the object at a distance more than double focal length of concave mirror.

2- Compare between long and short sight from the following points:

- a- The type of lens used in treatment of each one
- b-The cause of each one

3- Mention an activity to determine the radius of curvature of a concave mirror?

Wishing you all good luck
Mr. Mohamed

Last Look

First term

Mr. Mohamed Taha

Write the scientific term:

- 1- The value of change of an object's speed in one second. Acceleration
- 2- A flat and gaseous round disk that formed the solar system. Solar nebula
- 3- A mirror that forms a virtual, upright and small image for an object. Convex mirror
- 4- It contributes in genes exchanging between the two homologous chromosome's chromatids and distributing them in the gametes. Crossing over phenomenon
- 5- It is located in one of the spiral arms of the Milky Way. Solar system
- 6- Asexual reproduction occurs by using plant organs except seeds. Vegetative reproduction
- 7- The line joining between the two centers of curvature of lens passing by the optical center. Principal axis of the lens
- 8- It is the phenomenon of the light bouncing off in same medium when it meets the reflecting surface. Light reflection
- 9- The angle between the reflected light ray and the normal. Angle of reflection

- 10- The expansion of the universe and the atomic particles merged together producing helium and hydrogen. **Big bang**
- 11- The moving object covers equal distances at equal periods of time. **Regular speed**
- 12- The point of connection of two chromatids together. **Centromere**
- 13- The change of displacement relative to time. **Velocity**
- 14- A point located inside the lens on the principal axis in the mid distance between its faces. **Optical center of the lens**
- 15- It contains genetic material from each parent when it grows; it gives a new offspring whose traits combine each parent's traits. **Zygote**
- 16- It is the change in the object's speed in one second. **Acceleration**
- 17- It is any straight line that passes by the center of curvature of the mirror and any point on its surface except the pole of the mirror. **Secondary axis of the mirror**
- 18- A phase in which chromosomes pairs arrange on cell's equator. **Metaphase**
- 19- The force that keeps the continuity of planets rotation in their orbits. Central **gravitational force**
- 20- The value of an object's speed determined in relation to an observer. **Relative speed**
- 21- The force of attraction between the masses of two objects is directly proportion with the amount of their masses and inversely with the square of distance between them. **Newton's law of universal gravitation**
- 22- The total distance that a moving object covers divided by the total time taken to cover this distance. **Average speed**
- 23- The point of collection of the parallel rays after being reflected from the concave mirror and can be received on a screen. **Focus of the mirror**
- 24- A phase where some processes occur upon which the formation of a complete set of chromosomes that equal in numbers with the parental cell. **Telophase**
- 25- The space that contains all the galaxies, stars and planets. **Universe**

- 26- The image that can't be received on a screen. **Virtual image**
- 27- A phenomenon that occurs at the end of prophase 1 and contributes in genes exchange. **Crossing over phenomenon**
- 28- A disease resulting from the formation of the image behind the retina of the eye. **Long sightedness**
- 29- The biggest star that can be seen clearly by people on the earth surface. **Sun**
- 30- The unit that is used to measure the distances between the celestial bodies. **Light year**
- 31- Angle of incidence = Angle of reflection. **First law of light reflection**
- 32- The shortest straight line between two positions of a moving object. **Displacement**
- 33- The revolving of the earth around its axis in a period of time. **Earth's day**
- 34- The ability of some animals to compensate their missing parts. **Regeneration**
- 35- Cells that lead to the formation of gametes that contain N chromosomes. **Reproductive cells**
- 36- The point of collection of parallel rays in the concave mirror. **The focus**
- 37- A phase in which some important biological process occur to prepare the cell for division and genetic material in the cell is doubled. **Interphase**
- 38- The point that is in the middle of the reflective surface of the mirror. **Pole of the mirror**
- 39- The combination of the male and the female gametes to form zygote. **Fertilization**
- 40- It is the sun and eight planets revolving around it. **Solar system**
- 41- Twice the focal length of a spherical mirror. **Radius of curvature**
- 42- The change of an object's location as time passes according to the location of another object. **Motion**
- 43- A type of reproduction which considered a source of genetic variation. **Sexual reproduction**

- 44- A disease causes darkness of the eye lens. Cataract
- 45- An equipment was launched to the space; it allows astronomers an opportunity to study the evolution of the universe after the big bang. Hubble telescope
- 46- A process in which the living organism produces individuals with hereditary traits different from the parents. Sexual reproduction
- 47- A cell division that occurs in the somatic cells and results in the growth of the living organism. Mitosis cell division

Give reasons:

- 1- Sexual reproduction is the source of variation between individuals.

Because the produced individuals combine the genetic traits from two different parents male and female. Besides the crossing over phenomenon that leads to genes exchange within the chromosomes of each parent.

- 2- The shortsighted person requires medical glasses with concave lenses.

Because the concave lens diverges the light rays before entering the eye lens so the image is formed on the retina.

- 3- Asexual reproduction produces offspring identical to the parents.

Because it depends on mitosis cell division that produces two identical cells similar to the parent cell.

- 4- The perpendicular incident light ray on the plane mirror reflects on itself.

Because angle of incidence equals the angle of reflection equals zero.

- 5- The continuous expansion of space.

Because galaxies move away from each other

- 6- The constancy of the Earth's rotation in an orbit around the sun.

Because the rotation of the earth around the sun is controlled by two equal forces which are: central gravitational force of the sun and centrifugal gravitational force of the

- 7- The difference in the day due to the difference of the planet.

Because planets differ from each other in:

- The length of the radius
- The speed of rotation around their axes.

8- The difference in the year due to the difference of the planet.

Because planets differ from each other in:

- The distant away from the sun.
- The speed of rotation around the sun.

9- Force and acceleration are vectors physical quantities.

Because they have magnitude and direction.

10- The long sight is treated by suitable convex lens.

Because the convex lens converges the light rays before entering the eye lens so the image is formed on the retina.

11- Starfish continuous alive even a part of its body is cut.

Because starfish reproduces mitotically by regeneration.

12- The moving car seems stable to the observer moves with the same speed and direction.

Because the relative speed between them equals zero.

13- The convex lens has two centers of curvatures, while the convex mirror has only one centre.

Because the convex lens has two spherical surfaces, while the convex mirror has only one spherical surface.

14- The uniform velocity of a car cannot be obtained practically.

Because the car speed depends on the traffics.

15- It is impossible to obtain real image by using concave lens.

Because the refracted rays by the concave lens are not intersected.

16- The focal vertex of the thick convex lens is less than the thin convex lens.

Because the radius of the thick convex lens is less than that of the thin one.

17- Interphase stage occurs before starting cell division.

To duplicate the genetic material and prepare the cell for division.

18- The important of the crossing over phenomenon the first meiotic division.

To make variation in the genetic traits among the members of the same species.

19- Zygote contains the normal number of chromosomes of the organism.

Because it is produced from the combination between the male and female gametes, since each one contains half number of chromosomes (N).

20- The object that is placed at the focus of convex lens does not form an image.

Because the refracting rays through the lens pass parallel and do not meet.

21- Concave mirrors are used in solar ovens.

Because they collect a large amount of solar rays in a focus.

22- A convex mirror is put at the left side of the driver of the car.

To form an erect, virtual and small image for the way behind the car.

23- The shortest year is on mercury planet.

Because it is the nearest planet to the sun.

Complete the following:

1- Speed measuring unit is meter/second and the acceleration measuring unit is meter/second²

2- The somatic cells divide by mitosis division while the reproductive cells divide by meiosis division

3- The crossing over phenomena takes place during first prophase of the meiosis division.

4- The stars move in fixed orbits around the centre of the galaxy

- 5- The scientist who founds chaos theory that explains solar system formation is La Place
- 6- The genetic material in the nucleus of the cell consists of a number of chromosomes
- 7- From the examples of asexual reproduction, budding in yeast Fungus
- 8- The chromosomes pairs are arranged in first metaphase in the equator line of the cell
- 9- Meiosis cell division occurs in the anther of a flowering plant to produce pollen grains
- 10- The solar system is located in one of the spiral arms of Milky Way galaxy.
- 11- The longest day is of Venus planet, whereas the shortest one is of Jupiter
- 12- The incident light ray which is parallel to the principal axis of a concave mirror reflects passing through the focus
- 13- The chromosome chemically consists of nucleic acid called DNA and protein.
- 14- The displacement is considered as vector quantity, while the mass is considered as scalar quantity.
- 15- The radius of the concave mirror equals twice of its focal length.
- 16- It is impossible to obtain real image by using the concave lens or plane mirror
- 17- The spindle fibers are formed during the cell division in prophase and disappear in telophase
- 18- Amoeba reproduces by binary fission bread mold fungus reproduces by spore propagation
- 19- The result of multiplying (a speed of moving object \times time) = distance
- 20- The cell nucleus contains the genetic material which consists of number of chromosomes.
- 21- Real is the image that can be received on a screen.
- 22- Galaxy Is structural unit of the universe and our galaxy is Milky Way

23- From types of the asexual reproduction binary fission in amoeba budding as in yeast fungus

24- The chromosome consists of two connected threads at the Centromere point, each thread is called chromatid

25- Reproductive cells Are divided by meiosis which leads to the formation of gametes

26- Jupiter rotates around the sun once every 12 earthly years.

27- Within minutes of the big bang, the atomic particles merged together producing hydrogen and helium gases.

28- Meiosis division occurs in living organisms that reproduce by sexual reproduction

29- The most important vision defects are short sightedness and long sightedness

Problems:

1- A convex lens with a focal length of 10 cm , an object was placed at a distance of 20 cm from the lens. Assign the distance of the object's image from the lens and mention its properties.

The distance between the image and the lens = 20cm

The properties of the image: (Real, inverted and equal in size to the body)

2- A race car can move from stationary position and its speed reaches 100 kilometers through 20 seconds. Calculate the acceleration of the car.

$A = \frac{v^2 - v_1}{t} = \frac{100000 - 0}{20} = 5000 \text{m/sec}^2$

3- A body started to move from point x to point A covering a distance of 30 meters to the north in 20 seconds, then it moves 60 meters eastward to point b within 30seconds then it moves 30meters southward to point c within 10 seconds.

Calculate: 1- the total distance covered by the body ($30 + 60 + 30 = 120 \text{ meter}$)

2- The total time taken by the body ($20 + 30 + 10 = 60 \text{ seconds}$)

3- the average velocity ($60/60 = 1 \text{ m/sec}$) 4- the average speed ($120/60 = 2 \text{ m/sec}$)

4- A car moves in straight line, if its speed changes 5 m/sec to 10 m/sec within 5 seconds. Find the acceleration and its kind.

$A = \frac{V_2 - V_1}{t} = \frac{10 - 5}{5} = 1 \text{ m/sec}^2$. Positive acceleration

5- An object is placed in front of convex lens at distance of 6 cm. knowing that the focal length of this lens is 3 cm.

1- Determine by drawing the position of the formed image (on the center of curvature at a distance of 6 cm)

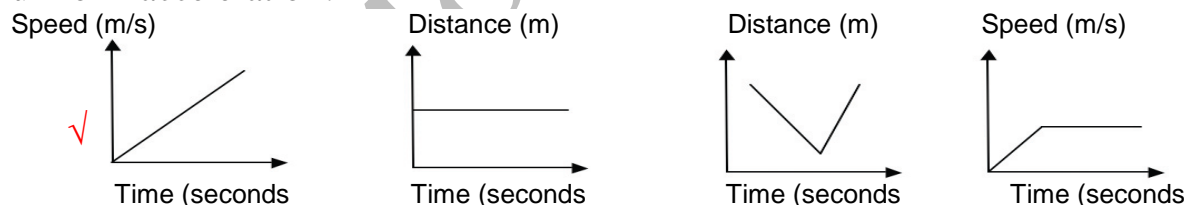
2- Mention the characteristics of such image (Real, inverted and equal in size to the body)

6- If the number of chromosomes in a human pancreatic cell is 23 pairs of chromosomes. What is the number of chromosomes in the following cells:

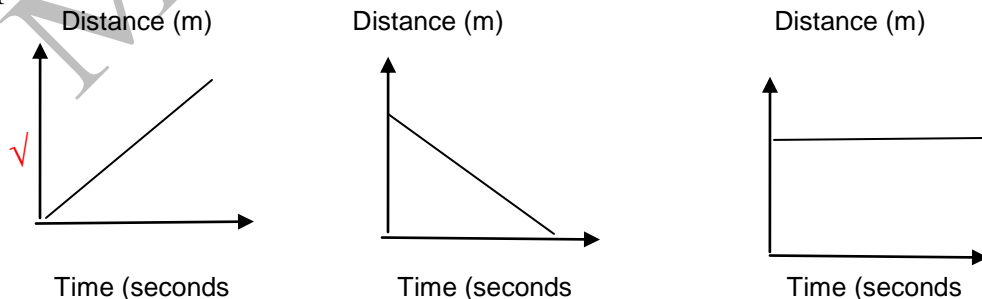
- Skin (46) - sperm (23) - fertilized ovum (46)

Choose the correct answer:

1- Which of the following graphical relations represents the moving of the body by uniform acceleration?



2- Which of the following graphs represent the movement of an object at constant speed?



3-The two factors can be used to describe the body motion are:

- 1- Speed and time
- 2- distance and time
- 3- Area and time
- 4- displacement and speed

4- The value of the speed $(v) = d_1 + d_2 + d_3 \div t_1 + t_2 + t_3$

That means the produced speed is Speed

- 1- average
- 2- increasing
- 3- nail
- 4- decreasing

5- A concave lens is placed in the passage of sun rays; a very small image for the sun is formed at a distance 5 cm from the optical centre of the lens, if this lens is used to form an equal image for a body, what is the distance between the body and the optical centre of the lens?

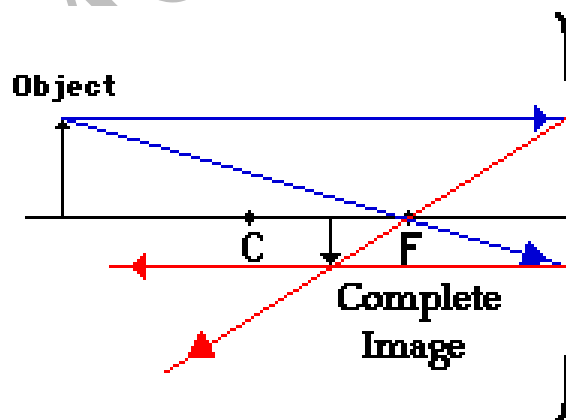
- 1- 5 cm
- 2- 10 cm
- 3- 50 cm
- 4- 60 cm

6- In which of the following cases the lift rider feels weightlessness phenomenon

- 1- when the lift ascends upwards with uniform acceleration
- 2- when the lift ascends upwards with uniform acceleration
- 3- when the lift descends with uniform velocity
- 4- When the lift falls

Various questions:

1- Draw a diagram to illustrate the image formed when the object at a distance more than double focal length of concave mirror.



2- Compare between long and short sight from the following points:

- a- The type of lens used in treatment of each one
- b- The cause of each one

Short sight	Long sight
3. What causes it? a. The diameter of the eyeball is too long. b. The curvature of convex lens is Strong.	What causes it? a. The diameter of the eyeball is too short. b. The curvature of convex lens is weak.
4. It is treated (corrected) by using Concave lens (diverging lens).	It is treated (corrected) by using convex lens (converging lens).

3- Mention an activity to determine the radius of curvature of a concave mirror?

Steps:

1. Place a concave mirror on a holder in front of a light source (description: a box which contains a bulb & light shines through a tiny opening)
2. Move the mirror at different distances until you get an image equal in size to the original spot of light.
3. Measure the distance between the mirror & the opening of the box.

Conclusion

The **focal length** is the distance between the focus & the pole.
 the focal length = $\frac{1}{2}$ the radius of the curvature



Wishing you all good luck
 Mr. Mohamed