Concave and convex mirror difference

The light is reflected from a mirror. Light passes, and is refracted by, a lens. The lenses have two focal points, one on either side of the lens. A concave mirror converges the light to a focal point. For lenses, light converges to a point for a convex lens. A convex mirror diverges from light, just like a coshed lens. Any lens that is thicker in the center than the ends is a convex lens. Any lens thicker at the ends than in the center is a coshed lens. Similarities between lenses and mirrors The equations we use for mirrors work for lenses. A convex lens acts a lot like a concave mirror. Both converge the rays parallel to a focal point, have positive focal lengths, and form images with similar characteristics. A conced lens acts a lot like a convex mirror. Both diverge parallel rays away from a focal point, have negative focal lengths, and form only virtual and smaller images. The sign convention is a little different. Because light passes through the positive distances of the image (and real images) they are on the opposite side of the lens from the object. Negative image distances are for virtual images, again, but these are on the same side of the lens as the object. Again, a ray diagram can help us understand what a lens does. Send rays out of the object, refract them through the lens, and see where they are going. The image is where the rays intert between. Rays that are easy to draw include: The parallel ray runs from the tip of the object horizontally to the lens. It refracted through the lens and passes through the focal point to the other side of the lens. The main beam is a straight line that starts from the tip of the object and passes through the center of the lens. As long as the lens is thin we can assume that the jet passes directly through. The focal beam is a mirror image of the parallel ray. It goes from the tip of the object through the focal point next to the lens object, and emerges from the lens that runs parallel to the main axis. The table shows what happens to the image as an object is carried from infinity to a convex lens. Position Image PositionImage Characteristics At infinityAt focal pointImage is a point that moves to f-2FMoving towards 2FIncreation in size, real, inverted, smaller than the object A 2FAt 2FReal, inverted, the same size as the 2F Move object towards FMoving from 2F to infinityReal, inverted, larger than the At FAt infiniteyInfinitely big Moving from F object to lensMoving from -infinity towards lensDe , virtual, vertical, larger than the object As long as the image so real the ray chart is reversible. An object in point A creates an image in point B, while a B-point object creates a At point A. What about a coked lens? The parallel beam runs from the tip of the object horizontally to the lens. It refracted through the lens and deviate from the main axis away from the focal point on the side of the lens object. The main beam is a straight line that starts from the tip of the object and passes through the center of the lens. As long as the lens is thin we can assume that the jet passes directly through. The focal beam leaves the tip of the object heading towards the focal point on the other side of the lens. It is re-directed by the lens to run parallel to the main axis. Moving an object from infinity to a coshed lens gives an image that moves from the focal point towards the lens, growing from one point to almost as large as the object. The image is virtual, vertical and smaller than the object. As a result of the EU General Data Protection Regulation (GDPR). We are not allowing internet traffic to the Byju website from countries within the European Union at this time. Tracking or performance measurement cookies were not served with this page. As a result of the EU General Data Protection Regulation (GDPR). We are not allowing internet traffic to the Byju website from countries within the European Union at this time. Tracking or performance measurement cookies were not served with this page. Updated 24 April 2017 by David Kennedy Concave mirrors and convex reflect light. However, one curve inwards while the other curves outwards. These mirrors also reflect images and light differently due to the placement of their focal points. The main axis is an imaginary line that runs through the center of a mirror by symmetrically dividing it in half. Imagine this as a curve on a piece of paper. The focal point is a point on the main axis where light intersperses if it were to hit the mirror parallel to the main axis. Concave mirrors curve inwards, creating a focal point in front of the mirror. Convex mirrors are curved outwards creating a focal point behind the mirror. Due to their shape and placement of focal points, images in concave mirrors appear upside down and far away. However, as you approach, the object becomes enlarged. If it gets close enough, the object gets bigger and the image is right-sided up. In a convex mirror, the images appear right-sided upwards, shrinking and virtual, or placed somewhere behind the mirror. About author David Kennedy attended Purdue University in West Lafayette, Indiana. After graduating with a bachelor's degree in creative writing, he has continued his writing career through freelance work in line with Demand Studios. Kennedy writes news articles related to health, medicine, industry, computers and education. Last updated on May 14, 2020 by Conical Mirror Teachoo Mirror Convex Mirror Spherical Mirror Mirrors the inner side of which is reflected are called concave mirrors. Spherical mirrors whose outer side is reflected are called convex mirrors. Its focus and curvature center is in front of the engine The focus and curvature center is behind the mirror. It is also a converging mirror. It is also called a divergent lens. The image formed by a concave mirror can be both virtual and erect, depending on the position of an object. The image formed by a convex mirror is always virtual. The enlargement produced by a concave mirror may be less than, equal to or greater than 1. The extension produced by a concave mirror can be less than 1. These are used in the headlights of a car. These are used as rear-mirrors in a car. Subscribe to our Youtube Channel - Concave Mirror: A concave mirror has the reflective surface of the caves inward. Concave mirrors converge light to a main point of attention. Therefore, they are also called converging mirrors. They are used to focus light. The image formed by a concave mirror varies in size depending on the position of the object with respect to the mirror. The image can be real or virtual, erect or inverted and enlarged, diminished or the same size as the object, all depending on the position of the object. (the image will be uploaded soon) Actual images can be brought to a screen and always reversed. Mirrors and laws of reflection: When we look at each other in a flat mirror, we will appear in the same size as us and appear to be as far behind the mirror as we will actually stand in front of the mirror. This is because of how the reflection is carried out. This is concluded as the laws of reflection. The first law of reflection says that light hitting a mirror would bounce off at the same angle. If the mirror is flat it would make the image appear in real size. The type of image created by a flat mirror is called a virtual image as it will appear behind the mirror. (the image will be uploaded soon) The laws of reflection are valid for any type or mirror or surface. Terms used in spherical mirrors: Pole (P): this is the midpoint of a mirror. Curvature Center (C): It is the center of the sphere of which the mirror is part. The Radius of curvature (R): It is the distance between the pole and the center of the curvature. It is twice the focal length of the mirror. Main axis: An imaginary line that is going through the pole and curvature center of the spherical mirror. Aperture: Used to denote mirror size. Focus: It is the point of the main axis, where the rays of light parallel to the main axis will converge (in the case of a concave mirror) or seem to diverge from (in the case of a convex mirror) after the reflection of the mirror. Focal distance: The distance between the pole and the mirror approach. Image properties Formed by a Convex mirror: Whatever the position of the object in front of the convex mirror, the images are always smaller than the object, erect, virtual and also formatted within the focus. Why does this convex mirror ever form a real image? A true it occurs where the rays converge, while the virtual image occurs when the rays diverge and only seem to come from one point. Actual images cannot be produced by a convex mirror, as it diverges the rays. Real image:(the image will be uploaded soon)The real image is formed as a result of the actual convergence of reflected light rays. It can be received on a screen and always reversed. Do concave mirrors always form real images? The concave mirror forms an image and this depends on the two parameters: the distance of the object and the focal length of the mirror. If the object is placed between the pole and the focus of a concave mirror, it is found that a virtual magnified and erect is formed. Difference between convex and concave mirrors: Concaveu MirrorWhat are convex and concave mirrors? If the inner side of the spherical mirror reflects, it is called a concave mirror. If the outer side of the spherical mirror is reflected, it is called a convex mirror. ImageConcave mirrors can form inverted and real images as well as virtual and erect images. Convex mirrors form virtual and erect imagesSizeSize can be smaller, larger or the same size depending on the position of the object. Smaller than the size of the object, always. PositionDepends on the position of the object. Always inside the focus, regardless of the position of the object. Image formation using concave and convex mirrors: Convex mirror ray diagram: When an object is placed in infinity, a virtual image will be formed at the point of attention. The image will be greatly diminished compared to the object. (the image will be uploaded soon) When an object is placed at a finite distance from the mirror, the virtual image will form between the pole and the focus. The image size is smaller compared to the object. (the image will be uploaded soon) Concave mirror ray diagram: when an object is in infinity, a real image is formed at the point of attention. The image size is much smaller compared to the object. (the image will be uploaded soon) A real image will be formed between the focus and the curvature center, when the object is placed beyond the curvature center. The size will be small compared to the object. (the image will be uploaded soon) When an object or thing is set in the center of the curvature, the actual image is formed in the center of the curvature. The size of the image is the same as the size of the object. (the image will be uploaded soon) When an object/thing is established between curvature and focus, the actual image will form beyond the center of the curvature. The size will be larger compared to the object. (the image will be uploaded soon) When an object is placed in focus, the actual image will be formed in infinity. The image size is much larger compared to the object that is placed in the focus. (the image will be uploaded soon) When is placed between pole and focus, a virtual virtual image behind the mirror. The size is larger compared to the object. (the image will be uploaded soon) Uses of Convex Mirrors: The convex mirror is used as a side/rear view - a vehicle's view mirror because it forms an erect and smaller image. Convex mirror gives a wide rear view. The convex mirror is suitable for comfortable shops and large supermarkets and any other corner for extensive observation. They can be used as street light reflectors because they can extend light over a larger area. They are put on the corners of roads so drivers can see vehicles and avoid collisions by taking due measures. Concave mirror uses: The concave mirror is a converging mirror, so it is used for many purposes. It is used in a torch, car headlights, headlights, etc. to reflect light and make a thin beam. It is used on the plane that lands at airports to guide the plane. It is used in the shaving process where you can get an enlarged and erect image of the face. It is used in solar ovens as well. It collects a lot of solar energy and focuses on a point where the container containing water or object is placed to cook. Concave mirrors are used in satellite dishes, they are also used by dentists and ENT doctors use them to get a bigger picture. Concave mirrors are used in electron microscope, astronomical telescopes, visual bomb detectors, etc. etc.