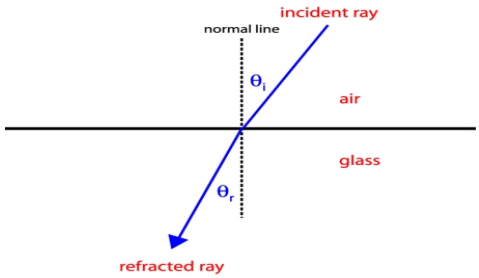
Light - worksheet answers

Glossary:

Biconcave lens: A biconcave lens has, on both faces, the top & bottom wider than the centre. Light rays will diverge when passed through a biconcave lens.
Converging lens: A converging lens is one that focuses incoming rays through a focal point
Dispersion: Dispersion occurs as light made up of different colours is refracted. The different wavelengths will refract at slightly different angles, causes the colours to be separated and visible.
Focal length: The focal length is the distance from the midpoint of a lens to its focal point. A thin lens will have a focal length shorter than a thicker lens of the same height.
Polarisation: Light waves are polarised, in that the electromagnetic variations occur in a particular plane only. Polaroid filters allow through only those waves aligned in a particular plane.
Real image: A real image is formed by the convergence of rays. Real images will always be inverted and can be projected onto a screen.
Reflection: Reflection of light occurs when light "bounces off" a surface. The angle of reflection is equal to the angle of incidence.
Refraction: Refraction occurs as a ray passes between two materials that transmit light at different speeds. Light will refract towards the normal as it enters a material that transmits it at a slower speed.
Total internal reflection: Total internal reflection occurs when a ray of light is exiting a slower medium at such an angle that the refracted angle would be greater than 90°. This means that no light can be refracted and all light is reflected off the surface back down again at an angle equal to the angle of incidence.
Virtual image: A virtual image is formed as light rays diverge from a mirror or lens and the eye interprets that these have come from a point behind. All virtual images will be upright and cannot be projected.

Questions:

1.



This beam is refracted **towards** the normal line.