

# NEW STANDARD ACADEMY

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## PHYSICS

1. An object, 5cm in length is placed at a distance of 20 cm in front of a convex mirror of radius of curvature 30 cm. Find the position of image, its nature and size.
2. An object is placed at a distance of 10 cm of from a convex mirror of focal length 15 cm. Find the position and nature of image.
3. Define Principal Focus of a concave mirror
4. Name a mirror that can give an erect and enlarged image of an object.
5. Why do we prefer a convex mirror as a rear view mirror in vehicles?

## CHEMISTRY

1. How will you come to know that a chemical change has occurred?
2. A colourless lead salt on heating produces brown fumes and a yellow solid . Name these compounds and write balanced chemical equation for the reaction.
3. How can you say that process of photosynthesis is an endothermic reaction?
4. Give one example of redox reaction which is also an example of:  
(i) Displacement reaction                      (ii) Combination reaction
5. Write the redox reaction in the corrosion of iron.

## BIOLOGY

1. Who is the father of circulatory system
2. What is blood give the composition
3. What is a plasma?
4. What is circulatory system in human?
5. Why blood give the red colour?

## MATH

1. Solve the equation for x:  
$$\frac{2x}{x-3} + \frac{1}{2x+3} + \frac{3x+9}{(x-3)(2x+3)} = 0, x \neq 3, -\frac{3}{2}$$
2. Find the root of the following quadratic by factorisation:  
(i)  $x^2+2\sqrt{2}x - 6 = 0$                       (ii)  $4\sqrt{3}x^2+5x-2\sqrt{3} = 0$
3. Solve the following quadratic equation for x :  
(i)  $x^2-2ax-(4b^2 - a^2) = 0$                       (ii)  $4x^2-4a^2x+(a^4-b^4) = 0$
4. Solve for x :  $\frac{1}{a+b+x} = \frac{1}{a} + \frac{1}{b} + \frac{1}{x}, a \neq 0, b \neq 0, x \neq 0$
5. Solve for x:  $\frac{x}{x+1} + \frac{x+1}{x} = 2\frac{1}{12}, x \neq 0, -1.$