# INDIAN SCHOOL AL WADI AL KABIR

## DEPARTMENT OF MATHEMATICS (2014-2015)

**WINTER HOLIDAY HOME WORK**

**NAME OF THE STUDENT: …… CLASS: XI SEC: ROLL NO: ……..**

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| **1** | The points $(1,3)$ and $(5,1)$ are the opposite vertices of a rectangle. The other two vertices lie on the line $y = 2x + c$ .Find c and the other two vertices. | **Ans :** $\boldsymbol{c = -4}$, $\boldsymbol{(2,0)\ (4,4)}$ |
| **2** | Find the equation of the line passing through the intersection of lines $x + y + 1 = 0$ and $x - y + 1 = 0$ and whose distance from the origin is 1. | $\boldsymbol{x + 1 = 0}$ |
| **3** | If the major axis and eccentricity of the ellipse are 8 and $\frac{1}{2}$ respectively, find the equation of the ellipse in standard form. | $\boldsymbol{\frac{x^2}{16} + \frac{y^2}{12} = 1}$ |
| **4** | Find the equation of the hyperbola, the length of whose latus rectum is 8 and the eccentricity is $\frac{3}{\sqrt{5}}$. | $\boldsymbol{4x^2 - 5y^2 = 1}$ |
| **5** | Find the equation of the ellipse having foci $(\pm 3,0)$ and passing through $(4,1)$. | $\boldsymbol{x^2 + 2y^2 = 18}$ |
| **6** | Find the equation of the circle which passes through the origin and cuts off intercepts 3 and 4 on positive part of X axis and Y axis. | $\boldsymbol{x^2 + y^2 - 3x - 4y = 0}$ |
| **7** | Find the equation of the circle having line segment, with end points $(0,-1)$ and $(2,3)$ as diameter. | $\boldsymbol{x^2 + y^2 - 2x - 2y - 3 = 0}$ |
| **8** | Find the image of the point $(-8,12)$ with respect to the line mirror $4x + 7y + 13 = 0$ | $\boldsymbol{(-16,-2)}$ |
| **9** | Find the equations of the medians of the triangle whose vertices are $(2,0)$ ,$(0,2)$ and$(4,6)$. | $\boldsymbol{x = 2}$ , $\boldsymbol{5x - 3y = 2}$ , $\boldsymbol{x - 3y + 6 = 0}$ |
| **10** | Find the equation of the circle which passes through the points (2,-2) and (3, 4) and whose center lies on the line$x + y = 1$. | $\boldsymbol{x^2 + y^2 + x - 3y - 16 = 0}$ |