Answer on Question #57349 – Math – Analytic Geometry

Question

1) Which conic section does the equation below describe?

$$\frac{(x+2)^2}{16}+\frac{(y-9)^2}{36}=1$$

A: Parabola
B: Ellipse
C: Circle
D: Hyperbola

Solution

Equation $\frac{(x+2)^2}{16}+\frac{(y-9)^2}{36}=1$ is transformed to a canonical equation for ellipse $\frac{x'^2}{a^2}+\frac{y'^2}{b^2}=1, \text{where } x'=x+2, y'=y-9.$

Answer: B: Ellipse.

Question

2) Which conic section does the equation below describe?

$$(x+2)^2 = 4(y-3)$$

A: Ellipse
B: Hyperbola
C: Circle
D: Parabola

Solution

Equation $(x+2)^2 = 4(y-3)$ is transformed to a canonical equation for parabola $y'^2 = 2px', \text{where } y'=x+2, x'=y-3.$

Answer: D: Parabola.