Answer on Question #76400 – Math – Algebra

Question

Trace the curve $4y^2 = x^2(x^2 + y^2)$. Also, clearly state all the properties you have used for tracing it.

Solution

Given the curve $4y^2 = x^2(x^2 + y^2)$.

This can be written as $y^2 = \frac{x^4}{(4-x^2)}$.

1. Curve would be symmetrical about x and y axis. As here the highest powers of x and y are both even numbers.

2. It passes through the origin.

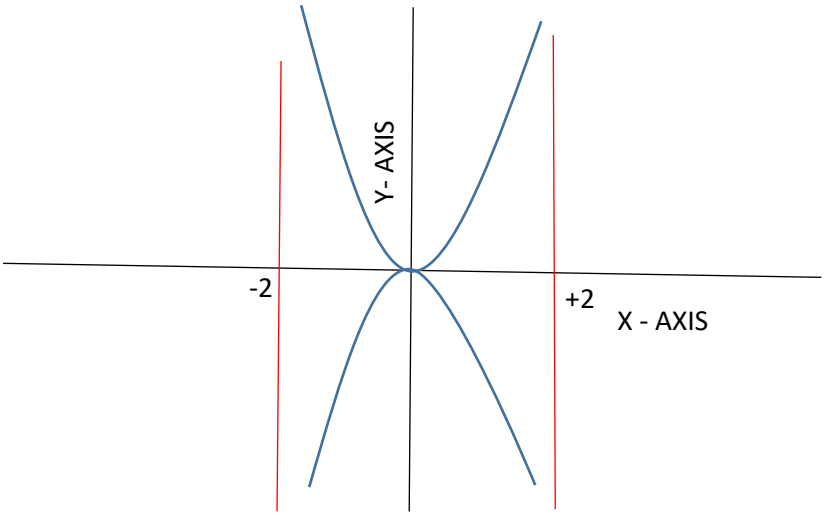
3. Tangent is at y = 0.

4. Curve has vertical asymptotes at x = 2 and -2.

5. Point of intersection is at (0, 0).

6. At x = ± 2, curve does not exist.

So, the trace of the given curve is given by,



Answer: Properties used to trace the curve are symmetry, asymptotes, point of intersection.