Peer-graded Assignment: Relations

Let $\mathcal{R}$ be a relation on $\mathbb{Z}$ given by $x\mathcal{R}y$ if and only if $x^2 - y^2$ is divisible by 3. Show that this relation is an equivalence relation and find its corresponding equivalence classes.

1. We have two possible classes, odd and even

2. We assume 25 - 16 = 9 and 16 - 25 = -9 **mod 3 = 0**, hence
   We digest that { -9, -6, -3, 0, 3, 6, 9 } **which is odd**

3. We then look even numbers , which shows **remainders of 1,**
   hence values {-7, -5, -4, -2, -1, 1, 2, 4, 5, 7} **which is even**

   ∴ We have **2 equivalence classes**