

Problem of the Month, April 2007

Let a, b , and c be any integers, and assume that none of a, b or c is divisible by 3. Show that $(a - b)(a - c)(b - c)$ is divisible by 6. (Hint: Show that one of the factors is divisible by 2 and that one of the factors is divisible by 3 by using the Pigeonhole Principle.)