

March 2009 Questions

- 1) A triangle has the following properties: the three sides and an altitude are four consecutive integers and the altitude partitions the triangle into two right triangles with integer sides. How many triangles have this property?
- 2) Let $ABCD$ be a rectangle with $BC = 3AB$. If P and Q are points on BC with $BP = PQ = QC$, show that

$$\angle DBC + \angle DPC = \angle DQC.$$

Submit all solutions by 23.59 March 31, 2009.