number selected has exactly two prime positive factors. Express your answer as a common fraction reduced to lowest terms.

2. Eight times an odd integer x is 33 more than the next largest odd integer. A rectangle has perimeter 64 and the longer side is 4 units greater than the shorter side. Find the sum of x and the length of one of the shorter sides of the rectangle.

3. For all real numbers a and b, let $a \otimes b = (a-5)(b+3)$. Let k be the number of sides of a convex polygon whose sum of the degree measures of its interior angles is 2160. Find the value of $(7 \otimes 20) + k$.

2012 John O'Bryan Mathematical Competition
Answers for the Two-Person Speed Event

Note: All answers must be written legibly and in simplest form. Exact answers are to be given unless

otherwise specified in the question. No units of measurement are required. Each problem has the