Pencils and Erasers Only – No Calculators Allowed.

1. Let $A$ be a constant. Rewrite

$$\int_0^{\sqrt{A}} x f(x^2 + 1) \, dx$$

as an integral of $f(u)$ with the same value.

2. Pender has lost all of his Algebra-I text except for the answer key. He is trying to recover some of the questions on adding fractions and producing the lowest-terms sums from their answers. Help him with the following:

(a) Answer: $\frac{1}{(x - 3)(x + 5)}$ (What is the most likely question?)

(b) Answer: $\frac{x}{(x - 3)(x + 3)}$

(c) Answer: $\frac{x}{(x - 3)(x + 5)}$

(d) Answer $\frac{x^2 - 11x - 30}{(x - 3)(x + 2)^2}$