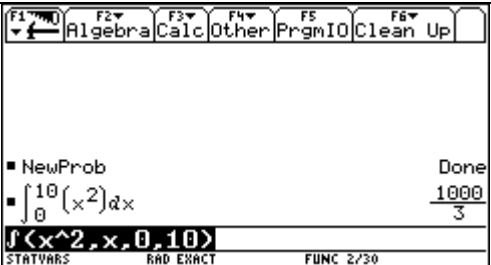
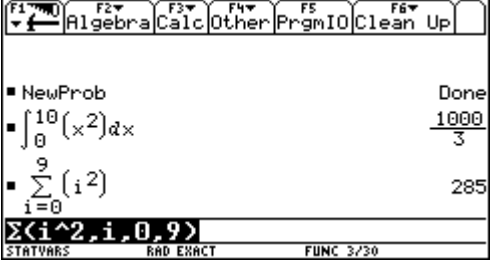
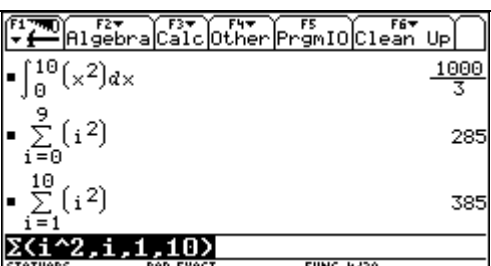


## INTEGRATION

<p>Use CAS to calculate <math>\int_0^{10} x^2 dx = \frac{1000}{3}</math>.</p>	
<p>We can subdivide <math>[0, 10]</math> into intervals of unit length and form rectangles with heights determined by the function <math>f(x)</math> values from the left endpoint of each interval.</p> <p>Use CAS to calculate <math>\sum_{i=0}^9 i^2</math></p>	
<p>We can use the right endpoints.</p> <p>Use CAS to calculate <math>\sum_{i=1}^{10} i^2</math>.</p> <p><i>Check both of these calculations by hand.</i></p>	
<p>Divide the interval into smaller intervals. (1000 intervals) so each interval has a width of <math>\frac{10}{1000} = \frac{1}{100}</math></p> <p>The left end point approximations gives:</p> $\sum_0^{999} \left(\frac{i}{100}\right)^2 \times 0.01 \approx 332.8335$ <p>The right end-point approximation gives:</p> $\sum_1^{1000} \left(\frac{i}{100}\right)^2 \times 0.01 \approx 333.8335$ <p>So the student can see that as the number of subdivisions increases, the approximation approaches the true value of <math>\int_0^{10} x^2 dx = \frac{1000}{3}</math>.</p>	