AP Calculus AB - Worksheet 52 **Approximating Area Using Riemann Sums #2**

1	Approximate the area under $f(x)=(x-1)^2$ on $[0,4]$ using a) 4 rectangles whose height is given using the left endpoint b) 4 rectangles whose height is given using the right endpoint c) 4 rectangles whose height is given using the midpoint d) 4 trapezoids
2	Approximate the area under $f(x)=x^2+1$ on $[0,4]$ using a) 4 rectangles whose height is given using the left endpoint b) 4 rectangles whose height is given using the right endpoint c) 4 rectangles whose height is given using the midpoint d) 4 trapezoids
3	Approximate the area under $f(x)=(x+1)^2$ on $[0,4]$ using: a) 4 rectangles whose height is the left-hand endpoint b) 4 rectangles whose height is the right-hand endpoint c) 4 rectangles whose height is the midpoint of each subinterval d) 4 trapezoids
4	If $f(x)=\begin{cases} 2x & \text{for } x \le 1 \\ 3x^2-1 & \text{for } x>1 \end{cases}$, then find $\int_0^2 f(x)\,dx$ (Hint: split into two integrals)
5	$\lim_{x \to 4} \frac{x^3-4x^2-x+4}{x-4}$
6	A function *f* that is continuous for all real numbers *x* has $f(3)=-1$ and $f(7)=1$. If $f(x)=0$ for exactly one value of *x*, then which of the following could be *x*? (A) -1 (B) 0 (C) 1 (D) 4 (E) 9
7	If $f(x)=\tan^2(8-2x)$, then $f'(1)=$

Answers:

1. a) 6 b) 14 c) 9 d) 10 exact: 28/3	2. a) 18 b) 34 c) 25 d) 26 exact: 76/3	3. a) 30 b) 54 c) 41 d) 42 exact: $\frac{124}{3}$	4. 7
5. 15	6. D	7. $-4\tan 6\sec^2 6$	