Honors Pre-Calculus **Name**_____
Integral/Riemann Sum
Formative Quiz

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1. $\int_{-1}^{3} x|x-2|dx$

2. $\int_{0}^{2\pi} |\sin x|\,dx$

3. Given $F(x)=\int_{1}^{x} f(t)dt$ and $f(t)=\int_{t}^{t^2}\left(u-\frac{1}{u}\right)du$, find $F''(2)$

4. The average value of $2x-1$ on $[3,a]$ is 9. Find the value of a.

5. Given $g(x)=x^2+\int_{2}^{x}(t-1)dt$, find the tangent line to g at $x=3$.

6. $\int_{-2}^{3} \left| x^2 - 3x \right| dx$

7. $\int_{-1}^{1} \frac{4}{1+x^2} dx$

8. Write the integral that correctly gives the area of the region consisting of all points above the x-axis and below the curve $y = 8 + 2x - x^2$.

9. $\int_{2}^{x^2} \sin(t) dt$

10. $\frac{d}{dx} \int_{2x}^{5x} \cos(t) dt$

11. Find the average value of $\sec^2 x$ on $\left[\frac{\pi}{6}, \frac{\pi}{4} \right]$.

12. If $\int_{-2}^{4} f(x) dx = a$ and $\int_{3}^{4} f(x) dx = b$, then $\int_{3}^{-2} f(x) dx =$