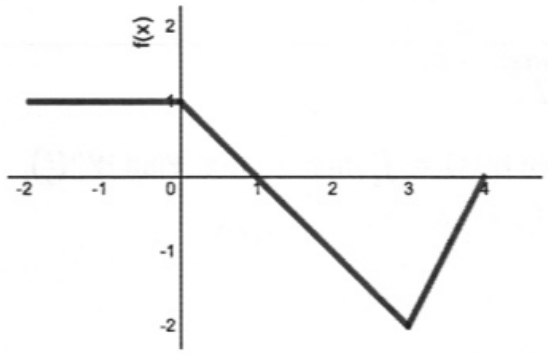
**Circuit Training – Fundamental Theorem of Calculus, Part I** Name _____

Directions: Beginning in cell #1, use the Fundamental Theorem of Calculus Part I (and occasionally Part II) to answer the question. Search for your answer and that problem becomes #2. Continue in this manner until you complete the circuit.
NOTE: Any questions about the function $H(t)$ pertain to the following given information...

Let $H(t) = \int_1^t f(x)dx$ where $f(x)$ is the continuous f
segments with domain $[-2, 4]$ as graphed b

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| Answer: $-\frac{5}{2}$<br>#__1__ Let $F(x) = \int_0^x 5dt$. Find $F(3)$. | Answer: $\frac{\pi}{3}$<br># _____ Find $\frac{d}{dt}\int_{-1}^{\tan t} \frac{2}{1+x^2}dx$ and evaluate it for $t = -\frac{\pi}{4}$. |
| Answer: 1<br># _____<br>Find $F'\left(\frac{3\pi}{2}\right)$ given $F(t) = \int_5^t \frac{2x}{\pi}e^{\cos x}dx$. | Answer: – 2<br># _____ $H''(1) = ?$ |

| | |
|---|---|
| Answer: $-1$<br>#_____ $H(-2) = ?$ | Answer: 4<br>#_____<br>$G(x) = \int_{-2}^{x} \cos\left(\theta + \frac{\pi}{2}\right) d\theta.$ $G'\left(-\frac{\pi}{2}\right) =$ |
| Answer: 15<br>#_____<br>Let $G(x) = \int_{\_}^{2} t dt.$ Find $G(4)$. | Answer: $-3$<br>#_____<br>Given $W(t) = \int_{2}^{t} \ln(x-1) dx.$ Find $W''\left(\frac{5}{2}\right)$. |
| Answer: 3<br>#_____<br>The position function, $s(t)$, is defined as $s(t) = s(0) + \int_{0}^{t} \left(\frac{8}{\pi} + \sec^2\beta\right) d\beta$ where $s(0) = -6$. Find $s\left(\frac{\pi}{4}\right)$. | Answer: 0<br>#_____ Now evaluate $H'(3)$. |
| Answer: 2<br>#_____ The next questions are about $H(t)$. Evaluate $H(1)$. | Answer: $-6$<br>#_____<br>Let $F(x) = \int_{3}^{x} \sqrt{1+t} dt.$ Find $F'(15)$. |