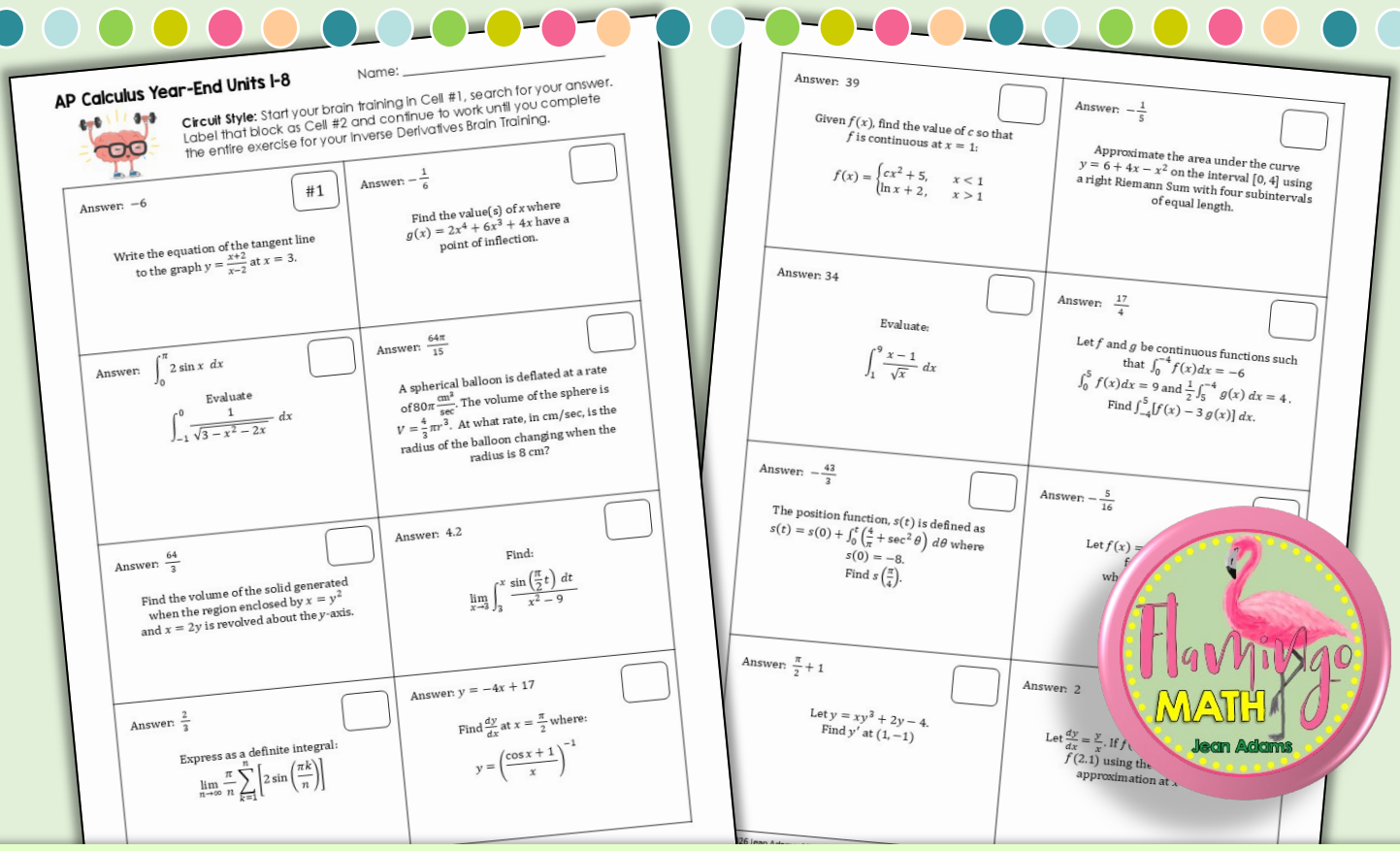
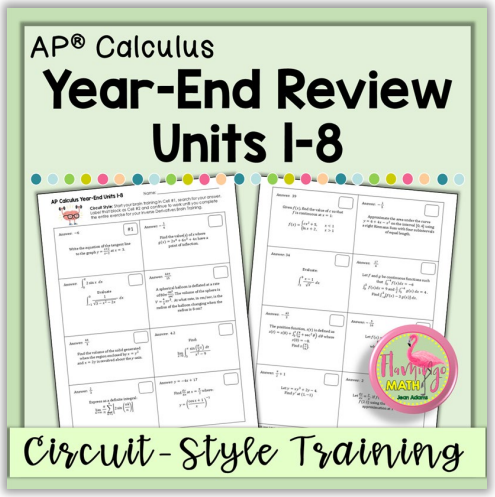
AP® Calculus

Year-End Review Units 1-8



Circuit-Style Training

AP Calculus AB Year-End Review Circuit



KEY CONCEPTS/TOPICS:

★ AP Calculus AB Topics from Units 1-8

Product Overview

AP Calculus AB Units 1-8 Year-End Review Circuit-Style Training

This resource is designed to help your AP Calculus students practice question stems from the entire AB learning objectives in a circuit-style activity.

This is a self-checking assignment in a "Circuit-style" training. Students start their brain training in Cell #1, then search for the answer. They label that block as Cell #2 and continue to work until they complete the entire exercise for the Brain Training Activity.

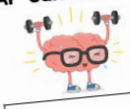
There are 22 question stems in the self-checking circuit.

COLLEGE BOARD STANDARDS ALIGNMENT:
Topics for AP Calculus AB Units 1-8

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Preview

AP Calculus Year-End Units 1-8 Name: _____



Circuit Style: Start your brain training in Cell #1, search for your answer. Label that block as Cell #2 and continue to work until you complete the entire exercise for your Inverse Derivatives Brain Training.

#1

Answer: -6

Write the equation of the tangent line to the graph $y = \frac{x+2}{x-2}$ at $x = 3$.

Answer: $-\frac{1}{6}$

Find the value(s) of x where $g(x) = 2x^4 + 6x^3 + 4x$ have a point of inflection.

Answer: $\int_0^{\pi} 2\sin x \, dx$

Evaluate

$$\int_{-1}^{0} \frac{1}{\sqrt{3 - x^2 - 2x}} \, dx$$

Answer: $\frac{64\pi}{15}$

A spherical balloon is deflated at a r
of $80\pi \frac{cm^3}{sec}$. The volume of the sphe
$V = \frac{4}{3}\pi r^3$. At what rate, in cm/sec,
radius of the balloon changing wh
radius is 8 cm?

Answer: $\frac{64}{3}$

Find the volume of the solid generate
when the region enclosed by $x = y^2$
and $x = 2y$ is revolved about the y-ax

Answer: $\frac{2}{3}$

Express as a definite integral

$$\lim_{n\to\infty} \frac{\pi}{n} \sum_{k=1}^{n} \left[2\sin\left(\frac{\pi k}{n}\right)\right]$$

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Answer: 39

Given $f(x)$, find the value of c so that f is continuous at $x = 1$:

$$f(x) = \begin{cases} cx^2 + 5, & x < 1 \\ \ln x + 2, & x > 1 \end{cases}$$

Answer: $-\frac{1}{5}$

Approximate the area under the curve $y = 6 + 4x - x^2$ on the interval $[0, 4]$ using a right Riemann Sum with four subintervals of equal length.

Answer: 34

Evaluate:

$$\int_1^9 \frac{x-1}{\sqrt{x}} \, dx$$

Answer: $\frac{17}{4}$

Let f and g be continuous functions such that $\int_0^{-4} f(x)dx = -6$
$\int_0^5 f(x)dx = 9$ and $\frac{1}{2}\int_5^{-4} g(x)\,dx = 4$.
Find $\int_{-4}^{5}[f(x) - 3g(x)]\,dx$.

Answer: $-\frac{43}{3}$

The position function, $s(t)$ is defined as

Answer: $-\frac{5}{16}$

Let $f(x) = 3e^{-x^2}$. Find $g(x)$,
for $0 < x < 3$,
ere $g(x) = f^{-1}(x)$.

If $f(2) = 4$, approximate
using the tangent line
oximation at $x = 2$.

Answer: $\frac{\pi}{6}$

Find the number of relative extrema of $g(x) = (x+4)^2(x-1)^3$.

Answer: $\frac{1}{4}$

Find the area of the region enclosed by $y = x^2 + 4x$ and $y = 6 - x^2$

Answer: -3

The velocity $v(t)$ of a particle moving along the x-axis for time $t > 0$ is given by $v(t) = t^3 - 4t^2 - 6t + 5$. Find its average velocity from $t = 1$ to $t = 3$.

Answer: $\frac{40}{3}$

Find the definite integral:

$$\int_0^{\frac{\pi}{4}} \sqrt{\tan x}\,\sec^2 x \, dx$$

Answer: $y = \sqrt{\ln 3 - \ln x}$

Let $h(x) = f^{-1}(x)$. Find $h'(2)$ given that $f(2) = -3, f'(2) = \frac{1}{2}$ $f(-3) = 2$ and $f'(-3) = -5$.

Answer: $0, -\frac{3}{2}$

Find the instantaneous rate of change at $x = -2$ for:

$$f(x) = \frac{2x-3}{3x+4}$$

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