

Name: \_\_\_\_\_

**Calculus Circuit: FTC 1 and FTC 2**

**Start with Problem #1 and solve for the answer. Then search for the problem with the answer you found, label that as #2, and solve that problem. Continue with this procedure until you get to #12.**

<p>Answer: 9</p> <p>#1. Let <math>F(x) = \int_1^x (4t)^{3/2} dt</math>. Evaluate <math>F''(9)</math>.</p>	<p>Answer: 12</p> <p>#____. Let <math>J(x) = \int_{\ln x}^5 e^t - \sin(\pi e^t) dt</math>. Evaluate <math>J'(2)</math>.</p>
<p>Answer: 6</p> <p>#____. <math>\frac{4}{5\pi} \int_0^5 \sqrt{25 - x^2} dx =</math></p>	<p>Answer: -1</p> <p>#____. <math>\int_{-1}^3 ( x - 2  + 3x) dx =</math></p>
<p>Answer: 11</p> <p>#____. <math>\int_{\ln 3}^{\ln 5} e^{2x} dx =</math></p>	<p>Answer: 4</p> <p>#____. Let <math>P(x) = \int_{4x^2}^{9x^2} t - \sqrt{t} dt</math>. Evaluate <math>P'(1)</math>.</p>

<p>Answer: 17</p> <p># _____. Let <math>A(x) = x + \cos(\pi x)</math>. Estimate <math>\int_{-1}^3 A(x) dx</math> using the Trapezoidal Rule with four partitions.</p>	<p>Answer: 15</p> <p># _____. Given: <math>\int_{-3}^7 f(x) dx = 3</math>, <math>\int_1^9 f(x) dx = 5</math>, and <math>\int_1^{-3} f(x) dx = -9</math>. Evaluate <math>\int_7^9 f(x) dx</math>.</p>														
<p>Answer: 36</p> <p># _____. Let <math>K(x) = \int_7^{3x} t^2 + 4 dt</math>. Evaluate <math>K'(\frac{1}{3})</math>.</p>	<p>Answer: 92</p> <p># _____. Let <math>C(3x) = \int_7^x t^2 + 2 dt</math>. Evaluate <math>C'(12)</math>.</p>														
<p>Answer: 5</p> <p># _____. <math>\lim_{n \rightarrow \infty} \sum_{i=1}^n \frac{3}{n} [(-1 + \frac{3i}{n})^2 - 2(-1 + \frac{3i}{n}) + 3] =</math></p>	<p>Answer: 8</p> <p># _____. Using the chart below, estimate <math>\int_1^9 g(t) dt</math> using the left-hand rule with 5 partitions.</p> <table border="1" data-bbox="824 1394 1370 1486"> <tbody> <tr> <td>t</td> <td>1</td> <td>2</td> <td>4</td> <td>5</td> <td>8</td> <td>9</td> </tr> <tr> <td>g(t)</td> <td>4</td> <td><math>\frac{1}{2}</math></td> <td>4</td> <td><math>\frac{1}{3}</math></td> <td>2</td> <td>0</td> </tr> </tbody> </table>	t	1	2	4	5	8	9	g(t)	4	$\frac{1}{2}$	4	$\frac{1}{3}$	2	0
t	1	2	4	5	8	9									
g(t)	4	$\frac{1}{2}$	4	$\frac{1}{3}$	2	0									

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Answers

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