Вариант № 1

Задание 1. Решить интегралы

<table>
<tr><th>№</th><th>Пример</th><th>При</th></tr>
<tr><td>1.1</td><td>$$\int \frac{a * x * dx}{(b + c * x^2)^k}$$</td><td>
<table>
<tr><th>a</th><th>b</th><th>c</th><th>k</th></tr>
<tr><td>1</td><td>11</td><td>-30</td><td>12</td></tr>
</table>
</td></tr>
<tr><td>1.2</td><td>$$\int p * (a * x^b + c * x^h) * \ln(x^w) * dx$$</td><td>
<table>
<tr><th>p</th><th>a</th><th>b</th><th>c</th><th>h</th><th>w</th></tr>
<tr><td>1</td><td>3</td><td>8</td><td>20</td><td>1</td><td>3</td></tr>
</table>
</td></tr>
<tr><td>1.3</td><td>$$\int \frac{a1 * x + a2}{b3 * x^3 + b2 * x^2 + b1 * x + b0} dx$$</td><td>
<table>
<tr><th>a1</th><th>a2</th><th>b3</th><th>b2</th><th>b1</th><th>b0</th></tr>
<tr><td>1</td><td>– 17 / 5</td><td>1</td><td>-2</td><td>3</td><td>-6</td></tr>
</table>
</td></tr>
<tr><td>1.4</td><td>$$\int \frac{h}{a + \sqrt{b1 * x + b2}} dx$$</td><td>
<table>
<tr><th>h</th><th>a</th><th>b1</th><th>b2</th></tr>
<tr><td>2</td><td>1</td><td>2</td><td>1</td></tr>
</table>
</td></tr>
<tr><td>1.5</td><td>$$\int \frac{h}{w1 * cos^2(x) + w2 * sin^2(x)} dx$$</td><td>
<table>
<tr><th>h</th><th>w1</th><th>w2</th></tr>
<tr><td>1</td><td>2</td><td>3</td></tr>
</table>
</td></tr>
</table>

1 . 6	$\int x * \arcsin(w1 * x) * dx$	**w1** 5
1 . 7	$\int_{a1}^{a2} \frac{h}{\sqrt{b0 - b1 * x - b2 * x^2}} dx$	**a1** **a2** **h** **b0** **b1** **b2** -3 8 1 16 6 1

Задание 2. Решить дифференциальное уравнение (ДУ)

2.1.

Найти частное решение ДУ: y ' = – 2 * y ,
удовлетворяющее начальному условию y (0) = 102

2.2.

Решить дифференциальное уравнение при a = 103

$$x * y' = 2 * \sqrt{a * x^2 + y^2} + y$$