

Quiz 12

Name: _____

1. Evaluate the following integrals. You do not need to fully simplify your final result.

(a) $\int_1^7 \frac{1}{t} dt$

the antiderivative is $\ln|t|$. Since we are only going to need positive numbers, absolute value won't be necessary. We have

$$\int_1^7 \frac{1}{t} dt = \ln(t) \Big|_1^7 = \ln(7) - \ln(1) = \ln(7) \approx 1.95.$$

(b) $\int_0^3 (2x + 5)^5 dx$

sub $u = 2x + 5$, so $du = 2 dx$, or $\frac{1}{2} du = dx$. Then you have

$$\int \frac{1}{2} u^5 du = \frac{1}{2} \frac{1}{6} u^6 = \frac{1}{12} (2x + 5)^6.$$

So,

$$\int_0^3 (2x + 5)^5 dx = \frac{1}{12} (2x + 5)^6 \Big|_0^3 = \frac{11^6 - 5^6}{12} = 146328.$$