Student: Cole Lamers **Date:** 10/19/19	**Instructor:** Viktoriya Shcherban **Course:** Calc 1 11:30 AM / Internet (81749&81750) Shcherban	**Assignment:** 7.3 Exponential Functions (Set 2)

1. Evaluate the integral $\displaystyle\int_{\ln 8}^{\ln 125} e^{x/3}\,dx$.

$\displaystyle\int_{\ln 8}^{\ln 125} e^{x/3}\,dx = \boxed{9}$

(Simplify your answer.)

2. Evaluate the integral.

$$\int \frac{e^{6\sqrt{s}}}{\sqrt{s}}\,ds$$

$\displaystyle\int \frac{e^{6\sqrt{s}}}{\sqrt{s}}\,ds = \boxed{\dfrac{e^{6\sqrt{s}}}{3}} + C$

(Use C as the arbitrary constant.)

3. Evaluate the integral $\displaystyle\int 12t^3\, e^{-t^4}\,dt$.

$\displaystyle\int 12t^3\, e^{-t^4}\,dt = \boxed{-3\,e^{-t^4}} + C$

(Use C as an arbitrary constant.)

4. Evaluate the integral $\displaystyle\int_{\pi/32}^{\pi/24} 64\left(1 + e^{8\sin(8x)}\right)(\cos(8x))\,dx$.

$\displaystyle\int_{\pi/32}^{\pi/24} 64\left(1 + e^{8\sin(8x)}\right)(\cos(8x))\,dx = \boxed{735.7}$

(Round to the nearest tenth as needed.)

5. Solve the initial value problem.

$$\frac{dy}{dt} = 4\,e^{4t}\sin\left(e^{4t} - 81\right), \quad y(\ln 3) = 0$$

The solution is $y = \boxed{-\cos\left(e^{4t} - 81\right) + 1}$.

6. Solve the initial value problem.

$$\frac{d^2y}{dx^2} = 4\,e^{-x},\ y(0) = 0,\ y'(0) = 3$$

$y = \boxed{4\,e^{-x} + 7x - 4}$

7. Find the derivative of y with respect to x for $y = 17^x$.

The derivative of y with respect to x for $y = 17^x$ is $\boxed{17^x \ln 17}$.

8. Find the derivative of y with respect to the independent variable.

$$y = x^{2\pi}$$

$y' = \boxed{2\pi x^{2\pi - 1}}$ (Type an exact answer in terms of π.)

9. Find the derivative of y with respect to θ.

$$y = 8^{\sec \theta} \ln 7$$

$\dfrac{dy}{d\theta} = \boxed{3 \ln (7) \ln (2) \cdot 8^{\sec \theta} \sec \theta \cdot \tan \theta}$

10. Find the derivative of y with respect to θ.

$$y = \log_7 5\theta$$

$\dfrac{dy}{d\theta} = \boxed{\dfrac{1}{\theta \ln 7}}$

11. Evaluate the integral $\int 13^x dx$.

$\int 13^x dx = \boxed{\dfrac{13^x}{\ln 13} + C}$

(Use C as an arbitrary constant.)

12. Evaluate the following integral.

$$\int_0^1 2^{-\theta} d\theta$$

$\int_0^1 2^{-\theta} d\theta = \boxed{\dfrac{1}{2 \cdot \ln 2}}$

13. Evaluate the integral $\displaystyle\int_0^{\pi/8} 7^{\cos 4t} \sin 4t\, dt$.

$\displaystyle\int_0^{\pi/8} 7^{\cos 4t} \sin 4t\, dt = \boxed{\dfrac{3}{2 \cdot \ln 7}}$

(Type an exact answer.)

14. Evaluate the following integral.

$$\int 6x^{\sqrt{3}}\,dx$$

$$\int 6x^{\sqrt{3}}\,dx = \boxed{\dfrac{6x^{\sqrt{3}+1}}{\sqrt{3}+1}} + C \quad \text{(Use C as the arbitrary constant)}$$