Calculus ABC Test II—Version 2855 **Name:** _____

Lecture section: _____ **Student Number:** _____

PUT ANSWERS IN BOXES. NO BOOKS/NOTES/CALCULATORS. DO YOUR OWN WORK. Simplify answers where possible. Include units where needed. All angles are in radians. $\log = \log_{10}$.

1. Find the equation of the line through the point (-1,-2) and parallel to the line $x + 3y = 6$ in *point-slope* form.

2. Find the value of:

$$\arccos\left(-\frac{\sqrt{3}}{2}\right)$$

3. Solve for z:

$$\frac{z}{5} = \frac{3z}{10} + 7$$

4. Rewrite by completing the square: $3 - 2x + x^2$

5. Find the value of:

$$\sin\left(\frac{7\pi}{4}\right)$$

6. Simplify as far as you can:

$$\ln\left(\frac{e^x}{e}\right)$$

7. Graph the function $y = e^{-x}$.
Label with the following values (if applicable): each intercept, location of each asymptote, and (x, y) coordinates of each min and max. Also include the coordinates of one other point.

8. Solve for x (write answer as a rational number):

$$9^{5x-1} = 81$$

9. If $f(t) = 5t^3 - 5t^2 + t + 2$, find $f'(t)$.

10. If $y = x^{-4/3}$, find dy/dx.

11. If $y = \sqrt{\sin(x)}$, find dy/dx.

12. If $f(t) = \tan(e^t + 1)$, find $f'(t)$.

13. Find the derivative of

$$f(x) = \cos(x)\ln(x)$$

14. Find the derivative of

$$f(x) = \frac{e^x}{x^2}$$

15. Find the derivative of

$$f(\theta) = \frac{\theta^2}{\sin(\theta)}$$

16. Find a function $f(x)$ whose derivative is:

$$f'(x) = \sin(x) - \frac{3}{x}$$

17. Evaluate the indefinite integral:

$$\int \frac{1}{t+3}\,dt$$

18. Evaluate the indefinite integral:

$$\int e^t \left(e^t + 2\right)^2 dt$$

19. Evaluate the definite integral:

$$\int_1^2 t^2\,dt$$

20. Evaluate the definite integral:

$$\int_1^2 x^{-2}\,dx$$