Calculus ABC Test II—Version 774 **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 with x-intercept -2 and y-intercept 3 in *point-slope* form.

2. Find the value of:

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

3. Solve for x:

$$\sqrt{x} + 1 = \sqrt{x+9}$$

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

5. Find the value of:

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

6. Solve for x:

$$\ln(5 + x) = 2$$

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 z:

$$\log(z) + \log(z - 1) = \log(4z)$$

9. If $f(t) = 3t^4 + 7t^3 - 4t + 3$, find $f'(t)$.

10. If $g(\theta) = \cos(\theta)$, find $g'(\theta)$.

11. If $f(\theta) = \sin(\theta + 1)$, find $f'(\theta)$.

12. If $f(x) = \tan(e^x)$, find $f'(x)$.

13. Find the derivative of

$$h(x) = x + x\ln(x)$$

14. Find the derivative of

$$F(t) = \frac{\ln(t)}{t^2}$$

15. Find the derivative of

$$h(x) = \frac{x}{\ln(x)}$$

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

$$f'(x) = 3x^2 + \sqrt{x}$$

17. Evaluate the indefinite integral:

$$\int \sin(3 - x)\, dx$$

18. Evaluate the indefinite integral:

$$\int 3t^2 \cos(t^3)\, dt$$

19. Evaluate the definite integral:

$$\int_0^2 (6x^2 - x)\, dx$$

20. Evaluate the definite integral:

$$\int_0^1 x^{5/4}\, dx$$