Calculus ABC Test II—Version 8213 **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:

$$\arcsin\left(\frac{1}{2}\right)$$

3. Solve for t:

$$\frac{6}{t-2} = \frac{t^2+t}{t-2}$$

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

5. Find the value of:

$$\arcsin(-1)$$

6. Simplify as far as you can:

$$\ln(15z^5) - \ln(3z^3)$$

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 t:

$$5^{-t/1000} = 2$$

9. If $f(s) = 6s^4 - 3s^2 - 8s - 4$, find $f'(s)$.

10. If $y = \tan(\theta)$, find $dy/d\theta$.

11. If $f(x) = \sin(\ln(x))$, find $f'(x)$.

12. If $g(\theta) = 5\sin(\theta^2 + 1)$, find $g'(\theta)$.

13. Find the derivative of

$$h(t) = t^2 \ln(t)$$

14. Find the derivative of

$$w(s) = \frac{5 + s^2}{3 + s}$$

15. Find the derivative of

$$f(x) = \frac{\cos(x)}{x + 1}$$

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

$$f'(t) = \frac{3}{t} - 3\sqrt{t}$$

17. Evaluate the indefinite integral:

$$\int \cos(2 - x)\, dx$$

18. Evaluate the indefinite integral:

$$\int 2xe^{x^2+5}\, dx$$

19. Evaluate the definite integral:

$$\int_{-1}^{2} (x^2 - 2x)\, dx$$

20. Evaluate the definite integral:

$$\int_{0}^{4} \sqrt{t}\, dt$$