Calculus ABC Test II—Version 8754 **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:

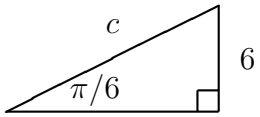
$$\arctan(0)$$

3. Solve for x:

$$\sqrt{2x+1} + 1 = x$$

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

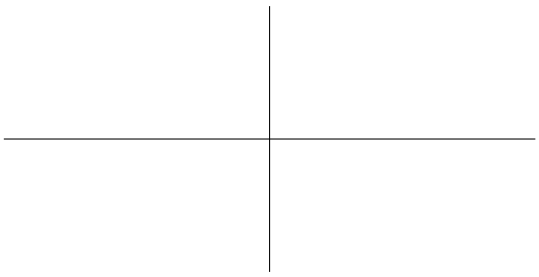
5. Find the value of c:



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 t:

$$\log(t+2) + \log(t-1) = 1$$

9. If $f(t) = 4t^3 - 7t^2 + 10t - 19$, find $f'(t)$.

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

11. If $h(t) = 5\cos(e^t)$, find $h'(t)$.

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

13. Find the derivative of

$$f(t) = (t^2 + t)e^t$$

14. Find the derivative of

$$f(x) = \frac{1 - e^x}{x^2 + 1}$$

15. Find the derivative of

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

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

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

17. Evaluate the indefinite integral:

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

18. Evaluate the indefinite integral:

$$\int xe^{-x^2}\, dx$$

19. Evaluate the definite integral:

$$\int_0^1 (6x^2 + 4x)\, dx$$

20. Evaluate the definite integral:

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