Calculus ABC Test II—Version 2391 **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 (0,0) and parallel to the line $-x + 2y = 6$ in *slope-intercept* form.

2. Find the value of:

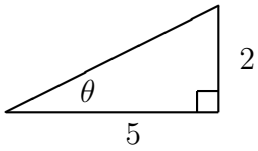
$$\arcsin\left(-\frac{\sqrt{3}}{2}\right)$$

3. Solve for θ:

$$\theta^2 = 16$$

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

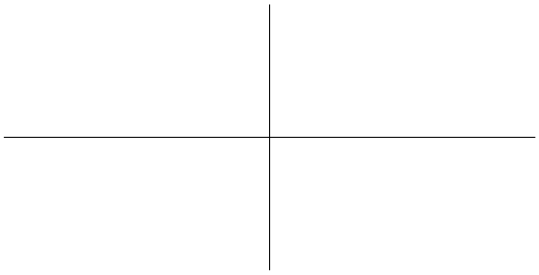
5. Find the value of $\sin(\theta)$:



6. Simplify as far as you can:

$$\ln(e^4)$$

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. Simplify:

$$z^{2/3}z^{1/5}$$

9. If $f(x) = 7x^3 + 6x^2 + 2x - 1$, find $f'(x)$.

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

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

12. If $f(x) = \cos(x - x^2)$, find $f'(x)$.

13. Find the derivative of

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

14. Find the derivative of

$$g(x) = \frac{\cos(x)}{x^2}$$

15. Find the derivative of

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

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

$$f'(x) = 3e^x + 2$$

17. Evaluate the indefinite integral:

$$\int \sin(6\theta - 2)\, d\theta$$

18. Evaluate the indefinite integral:

$$\int te^{t^2+1}\, dt$$

19. Evaluate the definite integral:

$$\int_0^1 x^3\, dx$$

20. Evaluate the definite integral:

$$\int_4^9 \frac{1}{\sqrt{t}}\, dt$$