Calculus ABC Test II—Version 4252 **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 (1,7) with slope -1 in *slope-intercept* form.

2. Find the value of:

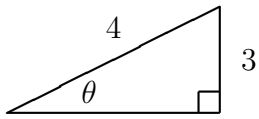
$$\arcsin(-1)$$

3. Solve for t:

$$\frac{1}{t-2} = 1 + \frac{2}{t^2 - 2t}$$

4. Rewrite by completing the square: $z^2 + 22z + 21$

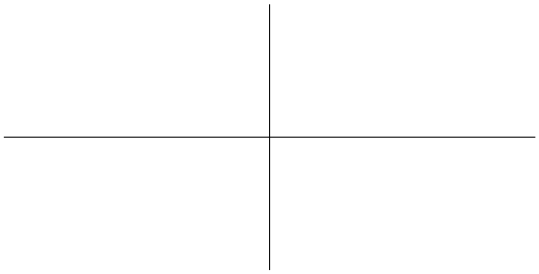
5. Find the value of $\cos(\theta)$:



6. Simplify as far as you can:

$$\ln\left(\frac{e^{5z}}{e^2}\right)$$

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. Simplify:

$$\left(x^2\right)^3$$

9. If $f(s) = 4s^3 + 2s^2 - 5s + 6$, find $f'(s)$.

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

11. If $f(x) = \cos(x^3)$, find $f'(x)$.

12. If $f(\theta) = \cos(\theta + 1)$, find $f'(\theta)$.

13. Find the derivative of

$$h(x) = (x^3 - x)\ln(x)$$

14. Find the derivative of

$$h(t) = \frac{1-t}{e^t}$$

15. Find the derivative of

$$f(x) = \frac{x^{3/2}}{x+1}$$

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

$$f'(t) = 5\sin(t) + t^{3/2}$$

17. Evaluate the indefinite integral:

$$\int e^{1-x}\,dx$$

18. Evaluate the indefinite integral:

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

19. Evaluate the definite integral:

$$\int_1^2 (3x+4)\,dx$$

20. Evaluate the definite integral:

$$\int_1^4 \frac{1}{\sqrt{x}}\,dx$$