Calculus ABC Test II—Version 478 **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 between the points $(2, 1)$ and $(1, 6)$ in *slope-intercept* form.

2. Find the value of:

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

3. Solve for x:

$$\frac{x+2}{x-3} = 5$$

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

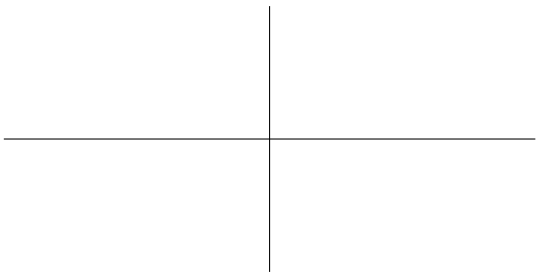
5. Find the value of:

$$\tan\left(\frac{3\pi}{4}\right)$$

6. Simplify as far as you can:

$$\ln\left(\frac{e}{\pi}\right) + \ln\left(e^2\pi\right)$$

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 y:

$$\log(y^2 - y - 2) = 1$$

9. If $f(x) = 5x^3 + 7x^2 - 6x + 1$, find $f'(x)$.

10. If $g(t) = \ln(t)$, find $g'(t)$.

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

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

13. Find the derivative of

$$f(\theta) = (\theta^2 + 3)\tan(\theta)$$

14. Find the derivative of

$$h(t) = \frac{t+1}{t}$$

15. Find the derivative of

$$h(t) = \frac{\sin(t)}{t+1}$$

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

$$f'(t) = 3e^t + \sin(t)$$

17. Evaluate the indefinite integral:

$$\int (2-x)^4\,dx$$

18. Evaluate the indefinite integral:

$$\int x^3\cos(x^4 - 2)\,dx$$

19. Evaluate the definite integral:

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

20. Evaluate the definite integral:

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