Calculus ABC Test II—Version 7774　　　　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 (-2,4) with slope -2 in *slope-intercept* form.

2. Find the value of:

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

3. Solve for t:
$$2t^2 = 5t$$

4. Rewrite by completing the square: $t^2 - 6t + 3$
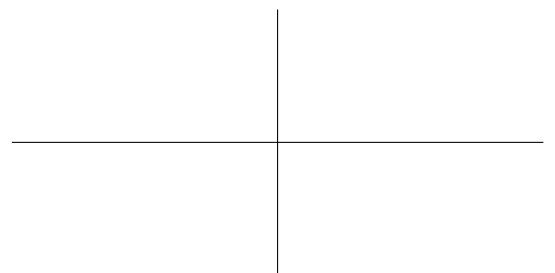
5. Find the value of:

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

6. Solve for t:
$$2e^{4t} = 3$$

7. Graph the function $y = \ln(x)$.
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 z:
$$7^{z+2} = 3$$

9. If $f(t) = 6t^5 - 2t^4 + 8t^3 + 9$, find $f'(t)$.

10. If $g(t) = \dfrac{1}{t}$, find $g'(t)$.

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

12. If $w = \sqrt{t^2 + 4}$, find dw/dt.

13. Find the derivative of

$$f(\theta) = (\theta - \pi)\sin(\theta)$$

14. Find the derivative of

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

15. Find the derivative of

$$h(x) = \frac{x^2 - 7x}{x + 4}$$

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

$$f'(t) = \cos(t) - \frac{1}{t}$$

17. Evaluate the indefinite integral:

$$\int \frac{1}{e^t}\, dt$$

18. Evaluate the indefinite integral:

$$\int x^2 e^{-x^3}\, dx$$

19. Evaluate the definite integral:

$$\int_{-1}^{2} (3t - 4)\, dt$$

20. Evaluate the definite integral:

$$\int_{0}^{\pi/2} \sin(2x)\, dx$$