Calculus ABC Test II—Version 4493   **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 $(0, 1)$ and $(1, 2)$ in *point-slope* form.

2. Find the value of:

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

3. Solve for x:

$$\frac{4}{3x} = \frac{5}{6} + \frac{1}{2x}$$

4. Rewrite by completing the square: $x^2 - 4x$
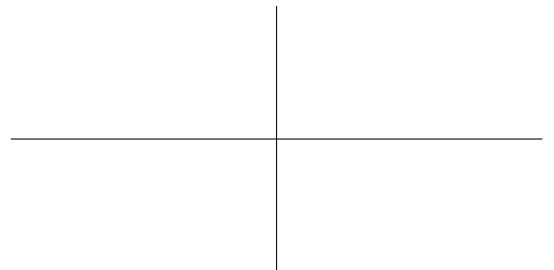
5. Find the value of:

$$\arcsin(0)$$

6. Simplify as far as you can:

$$\ln(e^8)$$

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

10. If $g(x) = x^{4/5}$, find $g'(x)$.

11. If $f(x) = \tan(e^x)$, find $f'(x)$.

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

13. Find the derivative of

$$g(x) = x\cos(x)$$

14. Find the derivative of

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

15. Find the derivative of

$$w(s) = \frac{3 + s^2}{2 + s}$$

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

$$f'(x) = 5\sqrt{x} + 5$$

17. Evaluate the indefinite integral:

$$\int \frac{2}{2r + 1}\, dr$$

18. Evaluate the indefinite integral:

$$\int x\sin(x^2 + 1)\, dx$$

19. Evaluate the definite integral:

$$\int_1^2 t^2\, dt$$

20. Evaluate the definite integral:

$$\int_{-3}^{-2} \frac{1}{t^2}\, dt$$