

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 (2,5) with slope 0 in *slope-intercept* form.

2. Find the value of:

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

3. Solve for  $t$ :

$$2t - 1 = -\sqrt{2 - t}$$

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

5. Find the value of:

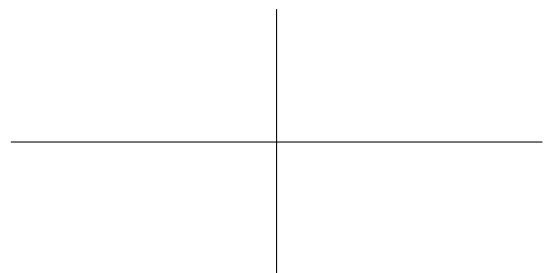
$$\sin\left(\frac{7\pi}{6}\right)$$

6. Solve for  $t$ :

$$2e^{4t} = 3$$

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  $x$  (write answer as a rational number):

$$10^{1-3x} = 100$$

9. If  $f(t) = 6t^4 - 3t^2 + 2t + 1$ , find  $f'(t)$ .

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

11. If  $h(y) = \ln(y^2 - y)$ , find  $h'(y)$ .

12. If  $F(x) = \ln(x^2)$ , find  $F'(x)$ .

13. Find the derivative of

$$F(x) = x^5 \ln(x)$$

14. Find the derivative of

$$F(x) = \frac{1+x}{\cos(x)}$$

15. Find the derivative of

$$f(x) = \frac{\tan(x)}{e^x}$$

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

$$f'(t) = \frac{3}{t} - 3\sqrt{t}$$

17. Evaluate the indefinite integral:

$$\int \cos(2-x) dx$$

18. Evaluate the indefinite integral:

$$\int x \cos(x^2 + 1) dx$$

19. Evaluate the definite integral:

$$\int_{-1}^2 (2x^2 + 1) dx$$

20. Evaluate the definite integral:

$$\int_{-\pi/4}^0 \sin(2\theta) d\theta$$