

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  $(-3, -5)$  with slope  $\frac{1}{2}$  in *slope-intercept* form.

2. Find the value of:

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

3. Solve for  $r$ :

$$\frac{r-3}{5} = \frac{r}{7}$$

4. Rewrite by completing the square:  $x^2 - 5x + 3$

5. Find the value of:

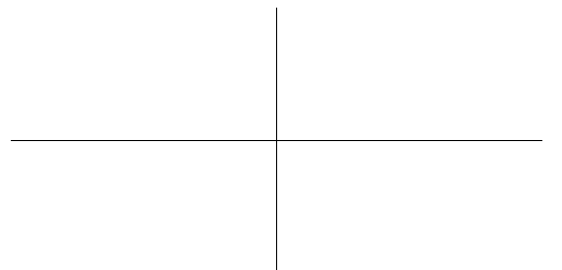
$$\tan\left(\frac{7\pi}{6}\right)$$

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. Solve for  $x$ :

$$2 - \log(3 - x) = 0$$

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

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

11. If  $z = \sqrt{1 - r^2}$ , find  $dz/dr$ .

12. If  $f(x) = e^{1-2x}$ , find  $f'(x)$ .

13. Find the derivative of

$$g(y) = 1 + y \cos(y)$$

14. Find the derivative of

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

15. Find the derivative of

$$f(x) = \frac{1}{\ln(x)}$$

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

$$f'(t) = 3e^t + 5 \cos(t)$$

17. Evaluate the indefinite integral:

$$\int \sin(3\theta + 2) d\theta$$

18. Evaluate the indefinite integral:

$$\int x^3 e^{x^4-2} dx$$

19. Evaluate the definite integral:

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

20. Evaluate the definite integral:

$$\int_1^2 \frac{1}{x} dx$$