

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

2. Find the value of:

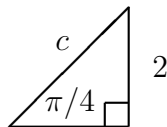
$$\arccos\left(\frac{\sqrt{2}}{2}\right)$$

3. Solve for x :

$$x + \frac{9}{x} = 6$$

4. Rewrite by completing the square: $2x^2 + 8x - 1$

5. Find the value of c :

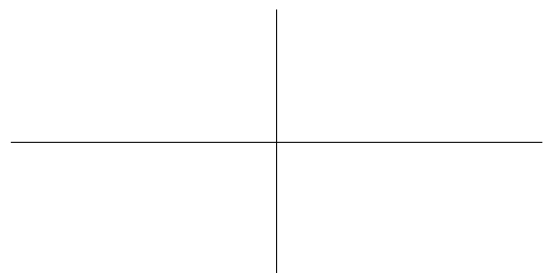


6. Solve for x :

$$\ln(x) = 5$$

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 :

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

9. If $f(s) = 2s^4 + 7s^3 - 4s + 2$, find $f'(s)$.

10. If $y = \sqrt{x}$, find dy/dx .

11. If $f(\theta) = \sin(\theta^2 - \theta)$, find $f'(\theta)$.

12. If $f(t) = \tan(t^2 + 1)$, find $f'(t)$.

13. Find the derivative of

$$f(x) = \cos(x) \ln(x)$$

14. Find the derivative of

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

15. Find the derivative of

$$f(x) = \frac{\sin(x)}{\sqrt{x}}$$

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

$$f'(t) = 3 - 2\sqrt{t}$$

17. Evaluate the indefinite integral:

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

18. Evaluate the indefinite integral:

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

19. Evaluate the definite integral:

$$\int_0^2 (3x^2 - 2x) dx$$

20. Evaluate the definite integral:

$$\int_0^1 e^{-x} dx$$