

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 $(-1, 0)$ and $(-2, 5)$ in *slope-intercept* form.

2. Find the value of:

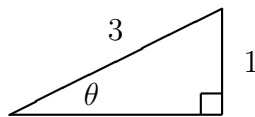
$$\arcsin(1)$$

3. Solve for y :

$$\frac{2y}{y+2} = \frac{1+2y}{y}$$

4. Rewrite by completing the square: $x^2 + 6x + 4$

5. Find the value of $\tan(\theta)$:

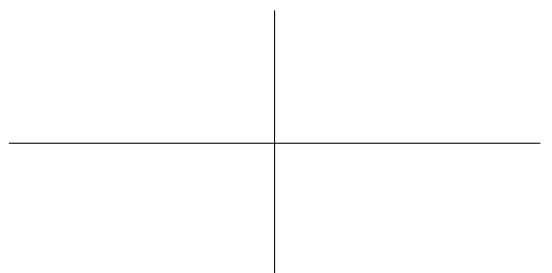


6. Solve for t :

$$e^{3t} - 4^9 = 0$$

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. Simplify and eliminate any negative exponents:

$$\left(\frac{z^{-3}}{z^{-1}}\right)^{1/2}$$

9. If $f(x) = 7x^3 + 6x^2 + 2x - 1$, find $f'(x)$.

10. If $y = x^{-4/3}$, find dy/dx .

11. If $f(t) = 3 \sin(t^2)$, find $f'(t)$.

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

13. Find the derivative of

$$f(x) = (x^2 - 2) \tan(x)$$

14. Find the derivative of

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

15. Find the derivative of

$$h(t) = \frac{t+1}{t}$$

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

$$f'(t) = 5t + e^t$$

17. Evaluate the indefinite integral:

$$\int \cos(4t + 2) dt$$

18. Evaluate the indefinite integral:

$$\int x^4 e^{-x^5} dx$$

19. Evaluate the definite integral:

$$\int_0^2 (6x^2 - x) dx$$

20. Evaluate the definite integral:

$$\int_4^9 \frac{1}{\sqrt{t}} dt$$