

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, 1) and (2, 4) in *slope-intercept* form.

2. Find the value of:

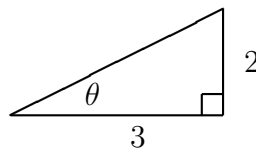
$$\arccos\left(-\frac{\sqrt{3}}{2}\right)$$

3. Solve for x :

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

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

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

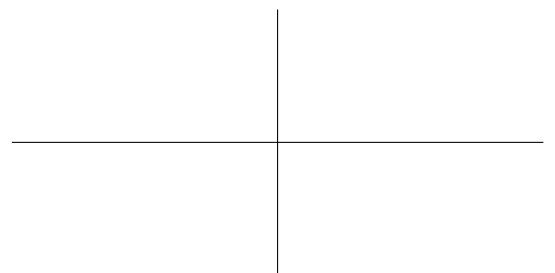


6. Solve for x :

$$\ln(2-x) + \ln(4-x) = 2\ln(x)$$

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 :

$$2^{4y-3} = 12$$

9. If $f(x) = 2x^5 + 7x^3 - 8x + 17$, find $f'(x)$.

10. If $g(\theta) = \tan(\theta)$, find $g'(\theta)$.

11. If $h(x) = 5 \sin(x^3)$, find $h'(x)$.

12. If $f(x) = 3 \cos(2x)$, find $f'(x)$.

13. Find the derivative of

$$f(y) = y^4 \ln(y)$$

14. Find the derivative of

$$f(x) = \frac{1+x}{\sqrt{x}}$$

15. Find the derivative of

$$f(t) = \frac{\cos(t)}{t}$$

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

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

17. Evaluate the indefinite integral:

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

18. Evaluate the indefinite integral:

$$\int 2x\sqrt{x^2+5} dx$$

19. Evaluate the definite integral:

$$\int_0^2 (2t^2 + 1) dt$$

20. Evaluate the definite integral:

$$\int_0^4 \sqrt{x} dx$$