

Directions: The quiz contains 20 problems. Place your answer in the blank provided. For graphing questions, a set of axes are provided. All graphs must be labeled.

1. Simplify $16^{-\frac{3}{4}}$.

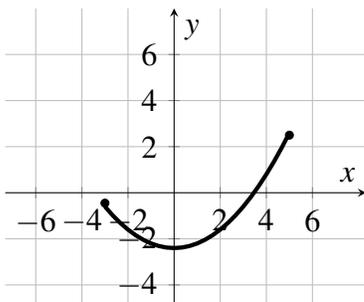
2. Simplify $\log_{10} 0.001$.

3. Find the exact value of $\cos(7\pi/6)$.

4. Write the equation of the line between the points $(1, 5)$ and $(-2, 3)$ in the y -intercept form:
 $y = mx + b$.

5. Simplify the expression $\left(\frac{3x^{\frac{1}{2}}y^5}{xy^2}\right)^2$. Write your answer without negative exponents.

6. Use the graph of $f(x)$ below to estimate the value of x such that $f(x) = 0$.



7. Expand and simplify $3(x - 6) - 2(x^2 - 1)$.

8. Solve the equation $x^2 = x + 20$.

9. Given the piecewise defined function below, determine the value(s) of x such that $f(x) = 4$.

$$f(x) = \begin{cases} x^2 & x \leq 1 \\ x + 1 & x > 1 \end{cases}.$$

10. Determine where the graphs of $y = 2x - 1$ and $y = \sqrt{x}$ intersect.

11. For the function $f(x) = \frac{1}{x}$, find the expression $f(3) - f(3 + h)$. Simplify your answer if possible.

12. Evaluate $\sin^{-1}\left(\frac{-1}{2}\right)$.

13. Given $f(x) = 2x^2 + x$ and $g(x) = e^x$, find $(f \circ g)(x)$. You do not need to simplify your answer.

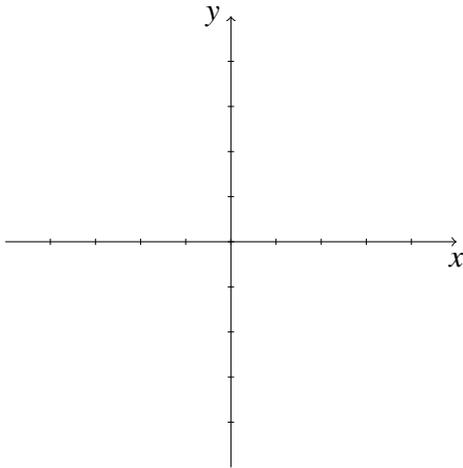
14. Solve for x in the equation $1 + e^{2-x} = 4$.

15. Determine the domain of $f(x) = \sqrt{2 - 4x}$. Give your answer in interval notation.

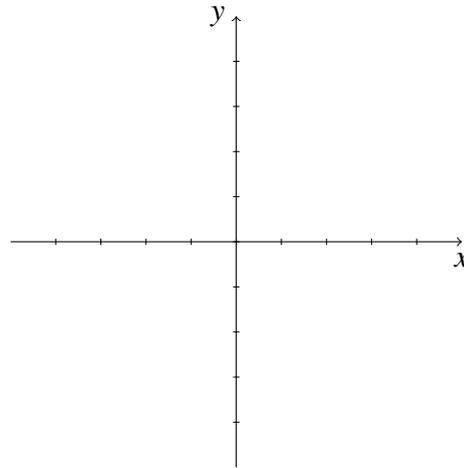
16. Solve for θ in the equation $\cos(\theta) = 1$.

Graph the following functions. Identify and label any asymptotes, x - or y -intercepts.

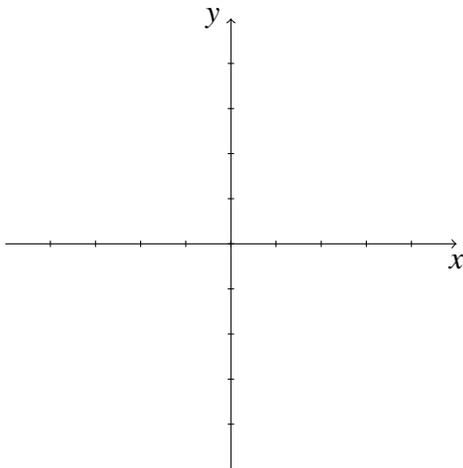
17. $f(x) = \frac{1}{x^2}$



18. $f(x) = 1 + e^{-x}$



19. $f(x) = \cos(2x)$ on the interval $[-2\pi, 2\pi]$



20. Use triangles to determine $\tan \theta$ assuming $\sin \theta = \frac{1}{3}$ and θ is in the first quadrant.
