
Please provide complete and well-written solutions to the following exercises.

Due October 2, at the beginning of class.

(Remember to also read the syllabus by noon PST, October 2.)

Assignment 1

Exercise 1. Find the equation for the line passing through the points $(-1, 4)$ and $(2, 6)$.

Exercise 2. Sketch the function $y = x^4$. Then sketch the function $y = x^5$.

Exercise 3. Compute $\cos(7\pi/4)$, $\sin(2\pi/3)$ and $\tan(\pi/3)$.

Exercise 4. Find the equation for the line passing through $(1, 2)$ with slope 3.

Exercise 5.

- Sketch the function $y = \frac{x^2}{x^2-1}$. Is this function even, odd, or neither?
- Sketch the function $y = \sqrt{1-x^2}$. Is this function even, odd, or neither?
- Sketch the function $y = 2^{-x}$. Is this function even, odd, or neither?
- Sketch the function $y = \cos(1/x)$. Is this function even, odd, or neither?

Exercise 6. True or False: For any real number x , we have $\sqrt{x^2} = x$. Justify your answer.

Exercise 7. True or False: For any real numbers x, y , we have $|x + y| \leq |x| + |y|$.

Exercise 8. Sketch the region in the plane consisting of all real numbers x, y such that $|x| + |y| \leq 1$.

Exercise 9. Consider the curve satisfying the equation

$$x^4 - 4x^2 - x^2y^2 + 4x^2 = 0.$$

Is this curve the graph of a function $y = f(x)$?

Exercise 10. Solve for x : $x^2 + 5x - 7 = 0$.

Exercise 11. Compute: 2^{2+3} , $(2^2)^3$.