BECA/Huson/Algebra 2: Regents Preparation   Name:
30 May 2024

Prep #20: Normal distributions

1. A population is normally distributed with a mean of 100 and a standard deviation of 10. Find the proportion of the population that falls above 110, to the *nearest thousandth*.

2. The distribution of the diameters of ball bearings made under a given manufacturing process is normally distributed with a mean of 4 cm and a standard deviation of 0.2 cm. What proportion of the ball bearings will have a diameter less than 3.7 cm?

3. There are 440 students at Thomas Paine High School enrolled in U.S. History. On the April report card, the students' grades are approximately normally distributed with a mean of 79 and a standard deviation of 7. Students who earn a grade less than or equal to 64.9 must attend summer school. (sketch and label the distribution)

   (a) Calculate the number of standard deviations the 64.9 cutoff score is from the mean.

   (b) What percentage of the students scored at or below 64.9?

   (c) Find the number of students who must attend summer school for U.S. History rounded to the *nearest whole* student.
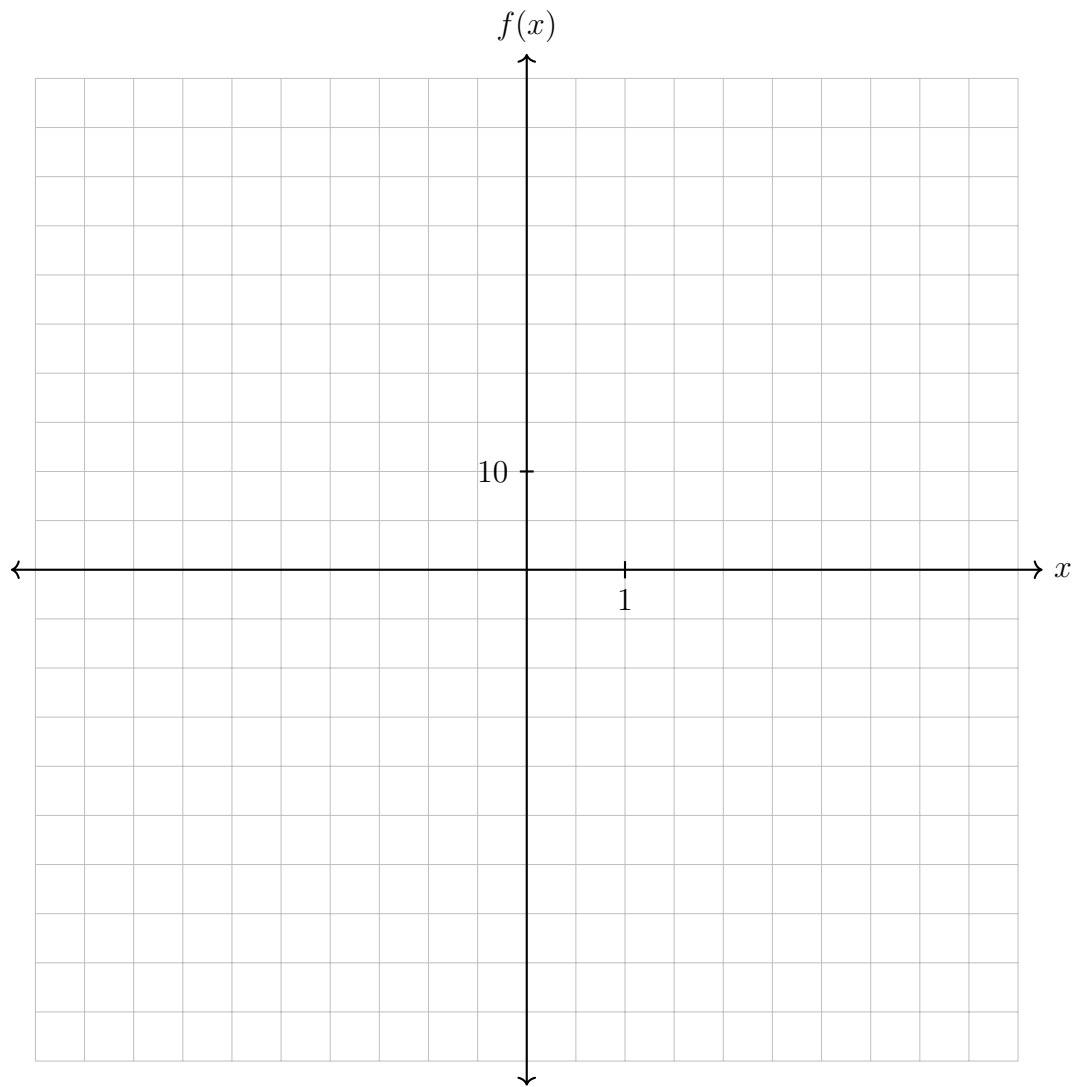
4. Graph the function $f(x) = x^4 - 2x^3 - 5x^2 + 3x + 4$.

$f(x)$

10

1

x

Mark and label the zeros of the function to the *nearest hundredth*.

Describe the behavior of the given function as x approaches positive infinity.