BECA/Huson/Algebra 2: Regents Preparation Name:
12 June 2024

Prep #28 Polynomial functions

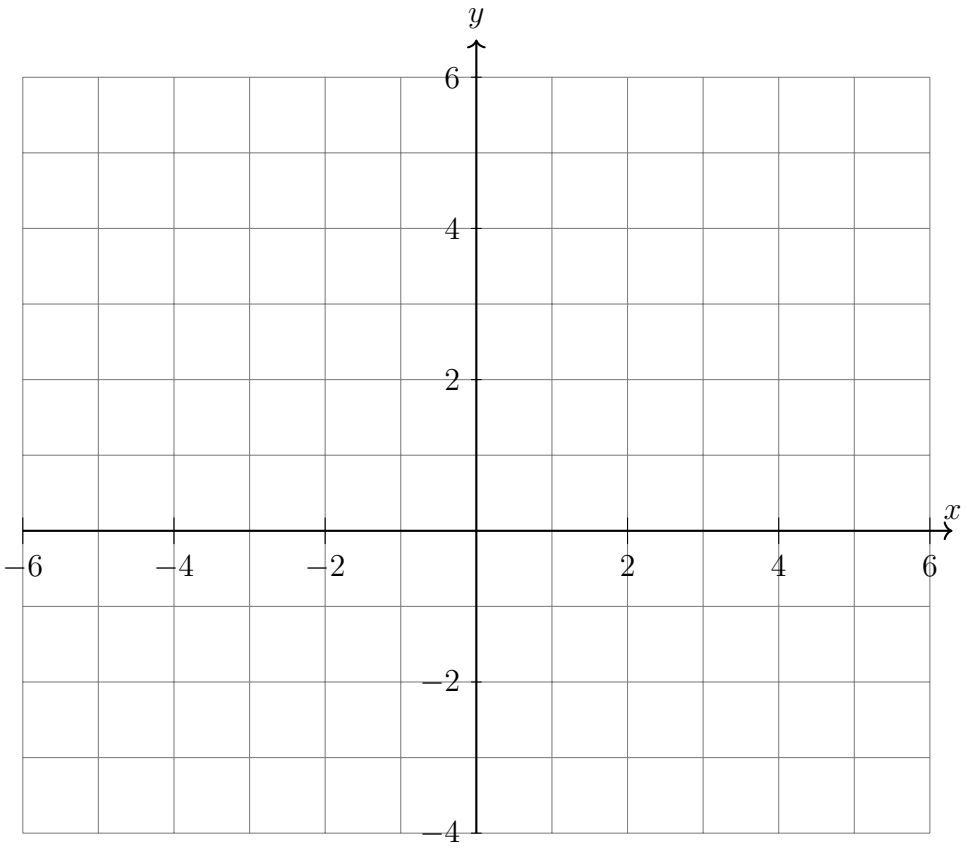
1. Given the function $f(x) = x^3 - 3x^2 + 4$. Graph f on the axes below.

   (a) Write down the zeros of the function.

   (b) Write an equation to represent $f(x)$ in factored form.

   (c) Which factor has a multiplicity of 2?

   (d) Find the average rate of change of the function over the interval $0 \leq x \leq 2$.



2. Tony is evaluating his retirement savings. He currently has \$318,000 in his account, which earns an interest rate of 7% compounded annually. He wants to determine how much he will have in the account in the future, even if he makes no additional contributions to the account.

   (a) Write a function, $A(t)$, to represent the amount of money that will be in his account in t years.

   (b) Graph $A(t)$ where $0 \leq t \leq 20$ on the set of axes below.

   (c) Find how many years it would take for Tony's account to reach \$1,000,000, to the *nearest year*.