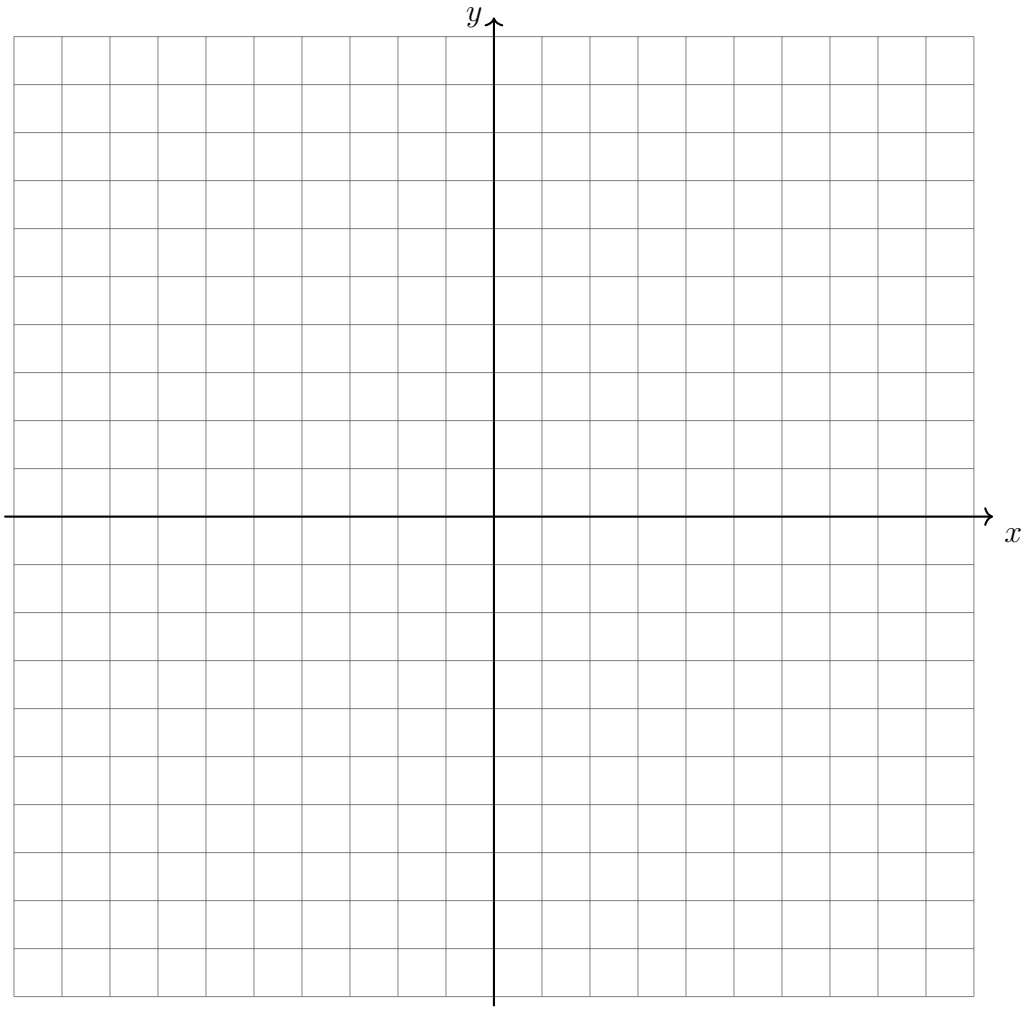
BECA / Dr. Huson / Regents Prep: Graphs First and last name:
2 June 2025 Section:

3.6 Do Now: Graphing 3rd order polynomials

1. Graph the cubic function $f(x) = x^3 - x^2 - 6x$ on the grid below.
   (a) Mark and label the x-intercepts.
   (b) Write the function in factored form.
   (c) Mark and label the local maximum and minimum points.
   (d) Characterize the end behavior of the function. Use the notation "as $x \to \pm\infty$ $y \to \pm\infty$"



2. Find the value of each variable that makes the equation true.

   (a) $5^2 \cdot 5^3 = 5^a$ $\quad a =$

   (b) $\dfrac{3^7}{3^6} = 3^b$ $\quad b =$

   (c) $7^c = 1$ $\quad c =$

   (d) $(4^3)^5 = 4^d$ $\quad d =$

   (e) $2^e = \dfrac{1}{2}$ $\quad e =$

   (f) $3^4 \cdot f^4 = 15^4$ $\quad f =$

3. Evaluate each expression.

   (a) $\dfrac{1}{4} \cdot 24 =$

   (b) $\dfrac{3}{2} \cdot 10 =$

   (c) $\dfrac{3}{5} \cdot 8 \cdot \dfrac{5}{3} =$

   (d) $\dfrac{2}{3} \cdot \dfrac{5}{2} \cdot 9 =$

4. Rewrite each expression to a fractional exponent.

   (a) $\sqrt[2]{5} =$

   (b) $\dfrac{1}{\sqrt[2]{5}} =$

   (c) $\sqrt[3]{5^2} =$

   (d) $\dfrac{1}{(\sqrt[4]{5})^3} =$

5. Rewrite each expression with fractional exponent as a radical.

   (a) $5^{\frac{1}{3}} =$

   (b) $5^{-\frac{1}{2}} =$

   (c) $5^{\frac{3}{2}} =$

   (d) $5^{-\frac{5}{3}} =$