

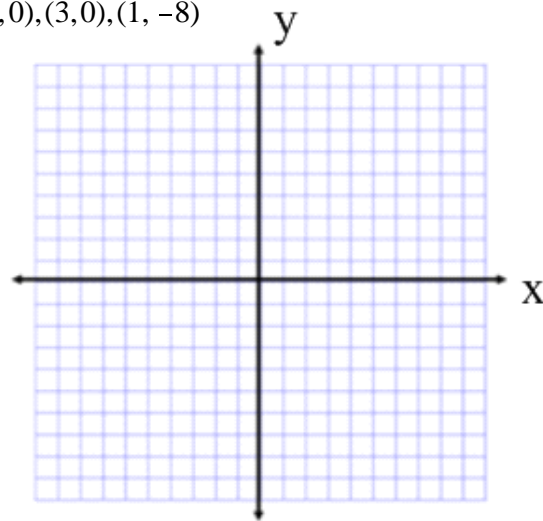


APPLYING POLYNOMIALS WORKSHEET

Find the equation for the following polynomial functions:

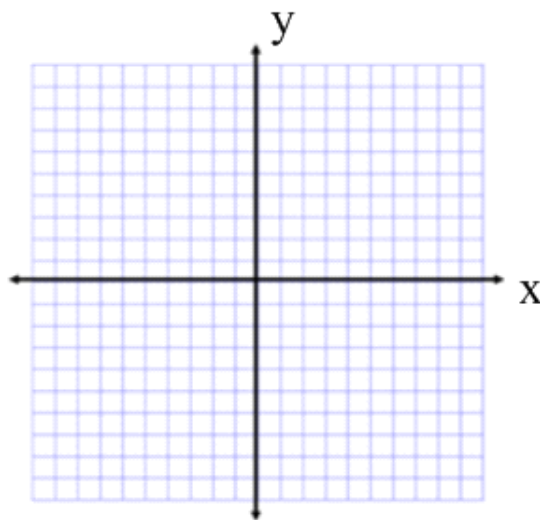
1. Cubic function containing the following points: $(-1,0), (2,0), (3,0), (1, -8)$

Sketch its graph:



2. Cubic function containing the following points: $(-2,0), (-1,0), (1,0), (0,6)$

Sketch its graph:



3. A quartic function containing the following points: $(2,60), (-3,0), (-1,0), (4,0), (1,0)$

For each of the following functions:

- a) Find six consecutive values beginning with $f(1)$
- b) Find the finite differences until they are a non-zero constant
- c) Do the finite differences agree with the degree of the function?

4. $f(x) = x^3 - 4x^2 - x + 1$

5. $f(x) = x^4 - 3x^2 + 2$

The following are values of functions. Use finite differences to determine what type of function they represent.

- 6.
- $f(1) = 0$
 - $f(2) = -3$
 - $f(3) = -8$
 - $f(4) = -15$
 - $f(5) = -24$
 - $f(6) = -35$

- 7.
- $f(1) = -12$
 - $f(2) = -14$
 - $f(3) = -10$
 - $f(4) = 6$
 - $f(5) = 40$
 - $f(6) = 98$

8. Determine an example of an equation for a function with the following characteristics:

a) Degree 3, a double root at 4, a root at -3 _____

b) Degree 3, roots at $\frac{1}{2}$, $\frac{3}{4}$, -1 _____

c) Degree 3, starting in quadrant 2, ending in quadrant 4, root at -2 and double root at 3

d) Degree 4, starting in quadrant 3, ending in quadrant 4, double roots at -10 and 10
