

## Functions Homework

Due Thursday, November 29th

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1. If  $f(x) = -x^n(x-1)^n$  find  $f(x^2) + f(x) \cdot f(x+1)$

2. If  $f$  is such that  $f(x) = 1 - f(x-1)$  express  $f(x+1)$  in terms of  $f(x-1)$

3. A function  $f$  is defined as 
$$\begin{cases} 1 & x=1 \\ 2x-1+f(x-1) & x \geq 2, x \in \mathbb{Z} \end{cases}$$
 Express  $f$  as the simplest possible polynomial

4. Suppose  $f(a+b+c+d+e) = f(a) + f(b) + f(c) + f(d) + f(e) - 8$ , what is  $f(0)$ ?

5. If  $f(x-1) = 2x^2 - 3x + 1$  then  $f(x+1) =$

6. If  $f(x^2+1) = x^4 + 5x^2 + 3$  then  $f(x^2-1) =$