

6.3 Zeros of Polynomials Practice

Directions: Name the zeros, their multiplicity, and the effect of the multiplicity on the graph.

1. $f(x) = x^2(x - 1)^4(x + 5)$

Zero	Multiplicity	Effect
0	2	bounces off x-axis at
1	4	bounces off x-axis at
-5	1	crosses x-axis at

2. $f(x) = -2x(3x + 1)^2(x + 7)^7$

Zero	Multiplicity	Effect
0		
$-\frac{1}{3}$		
-7		

3. $f(x) = x^3 - 12x^2 + 35x$

Zero	Multiplicity	Effect
0		
7		
5		

4. $f(x) = 3x^3 - 21x^2 - 54x$

Zero	Multiplicity	Effect
0		
9		
-2		

5. $f(x) = x^4 - 16x^3 + 64x^2$

Zero	Multiplicity	Effect
0		
8		

6. $f(x) = -8x^3 - 20x^2$

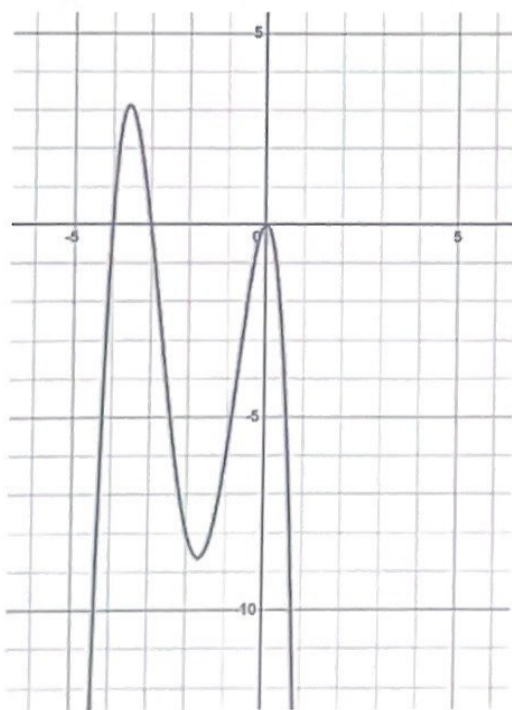
Zero	Multiplicity	Effect
0		
$-\frac{5}{2}$		

7. A polynomial function has a zero -1, 2, and 7 (all multiplicity 1). Write a function in standard form that could represent this function.

$$f(x) = x^3 - 8x^2 + 5x + 14$$

Directions: Given the graph of the polynomial, identify its key features. Estimate values when needed.

8. $f(x) = -x^4 - 7x^3 - 12x^2$



Leading Coefficient: _____

Degree: _____

Domain: _____

Range: _____

Rel. Maximum(s): _____

Rel. Minimum(s): _____

End Behavior: As
 $x \rightarrow -\infty, f(x) \rightarrow$ _____
 $x \rightarrow +\infty, f(x) \rightarrow$ _____

Increasing Int: _____

Decreasing Int: _____

Zeros: _____