Sec 3 Name_____

Chapter 4, Worksheet 1

Period____

Multiply.

1) $(m+4)(6m^2+m+6)$

2) $(5v+2)(v^2-3v+8)$

3) $(2m-4)(4m^2-8m+5)$

4) $(6n-4)(3n^2+5n+2)$

Remainder Theorem: Evaluate each function at the given value. Yes/ No, is it a root?

5) $f(m)=m^3+m^2-8m-20$ at $m=3$

6) $f(a)=a^4-5a^3-3a^2+19a-20$ at $a=5$

Find all zeros. State whether it would bounce or pass at each zero(multiplicity).

7) $f(x)=(x-3)(x-1)(x+1)$

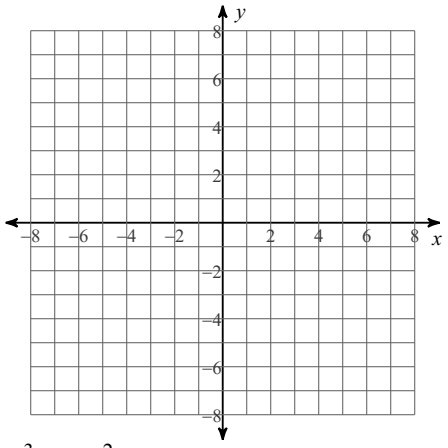
8) $f(x)=(x-1)^2\cdot(x+1)^2(x^2+1)$

9) $f(x)=(x+4)(x-2)(x+2)$

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

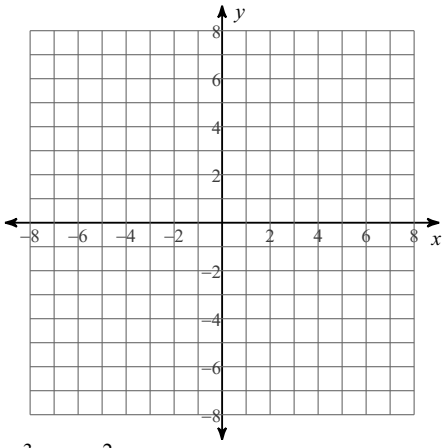
Factor completely,then graph.

11)



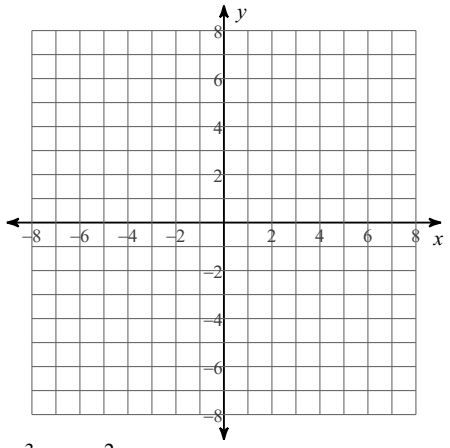
$x^3-9x^2+26x-24=0$; given root: 3

12)



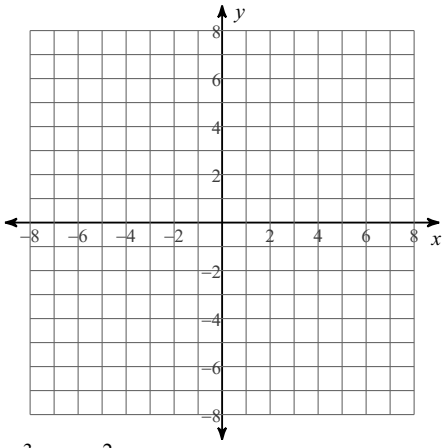
$x^3-5x^2-2x+24=0$; given root: 3

13)



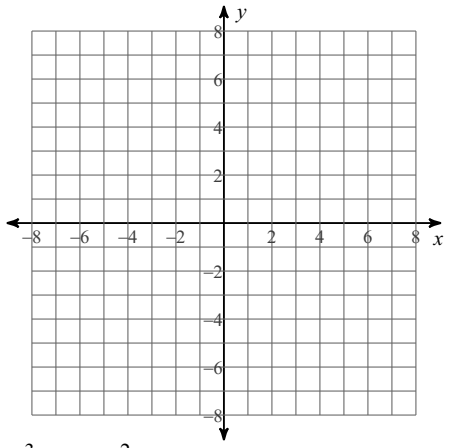
$x^3 + 4x^2 + 3x = 0$; given root: -3

14)



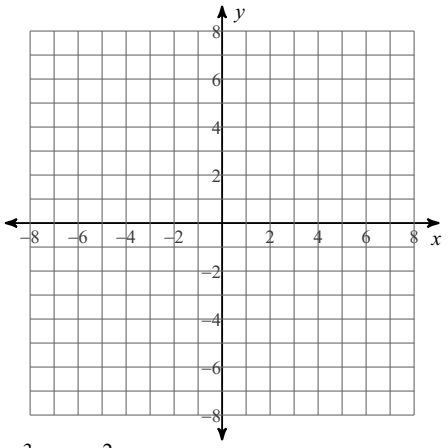
$x^3 + 3x^2 - 4x - 12 = 0$; given root: 2

15)



$x^3 + 14x^2 + 65x + 100 = 0$; given root: -5

16)

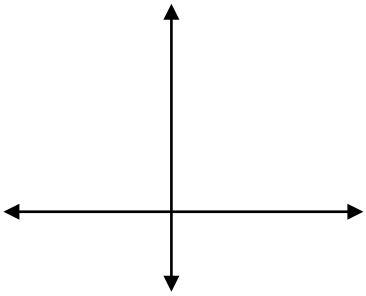


$x^3 - 6x^2 + 5x + 12 = 0$; given root: 3

Name: _____

I. Sketch the following polynomials on the axis provided. Find all the zeros for each polynomial, indicate multiplicities (exponent #; odd=pass, even=bounce), and sketch the end behavior.

17) $f(x) = (x+1)(x-2)$



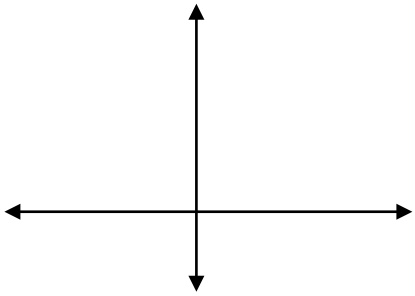
Leading term _____

End Behavior: _____

Zeros: _____

mult:_____

18) $g(x) = -(x+3)(x+2)(x-1)$



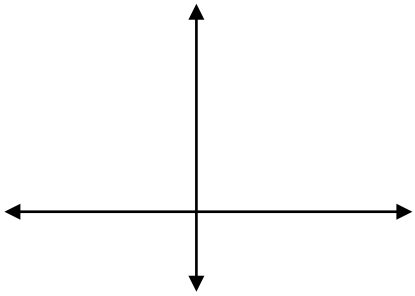
Leading term _____

End Behavior: _____

Zeros: _____

mult:_____

19) $h(x) = -x(x-2)(x+4)(x+1)$



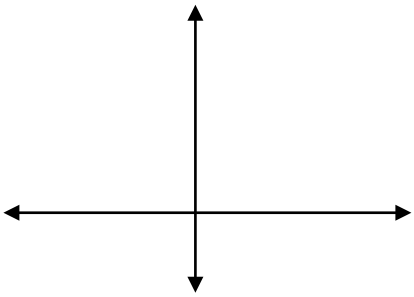
Leading term _____

End Behavior: _____

Zeros: _____

mult:_____

20) $p(x) = (x-2)^2(x+3)$



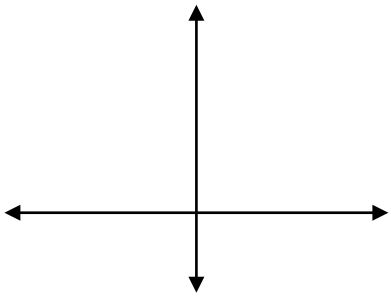
Leading term _____

End Behavior: _____

Zeros: _____

mult:_____

21) $j(x) = -3(x+1)^3x^2$



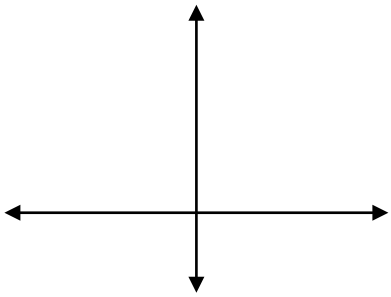
Leading term _____

End Behavior: _____

Zeros: _____

mult:_____

22) $f(x) = -(x+3)^5(x-1)$



Leading term _____

End Behavior: _____

Zeros: _____

mult:_____