Name _____   Date _____
Mr. Schlansky   Algebra II

Sketching Polynomial Functions

1. $f(x) = x^3 + 2x^2 - 9x - 18$
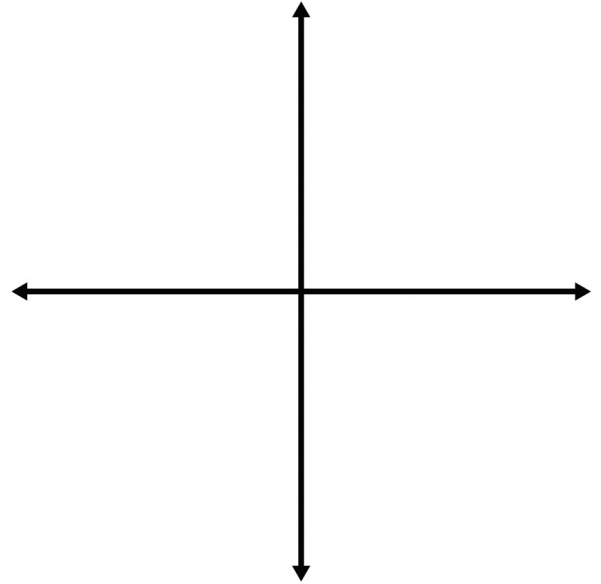
    Shape:

    y-intercept:

    x-intercepts (zeros):
    {-3,-2,3}

    End Behavior:

    $x \to -\infty,\ f(x) \to$

    $x \to \infty,\ f(x) \to$

2. $f(x) = x^4 - 10x^2 + 9$

    Shape:
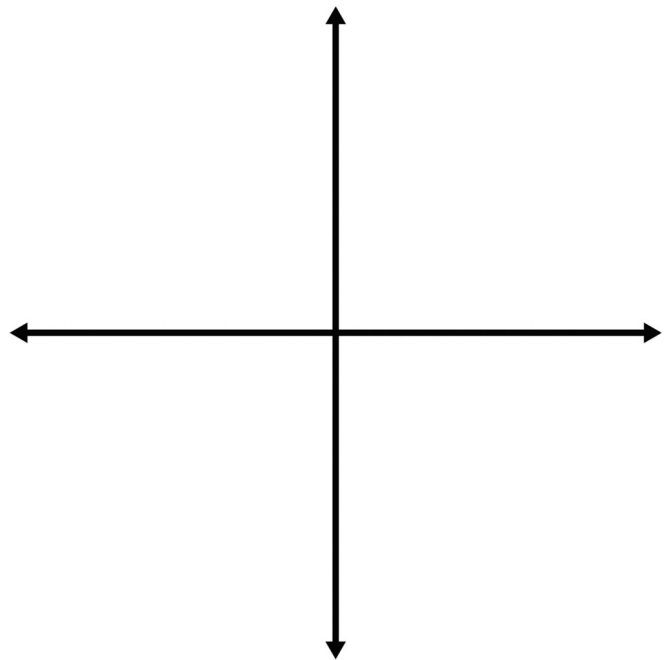
    y-intercept:

    x-intercepts (zeros):
    {-3,-1,1,3}

    End Behavior:

    $x \to -\infty,\ f(x) \to$

    $x \to \infty,\ f(x) \to$

3. $p(x) = -x^3 - 3x^2 + 4x + 12$

Shape:

y-intercept:

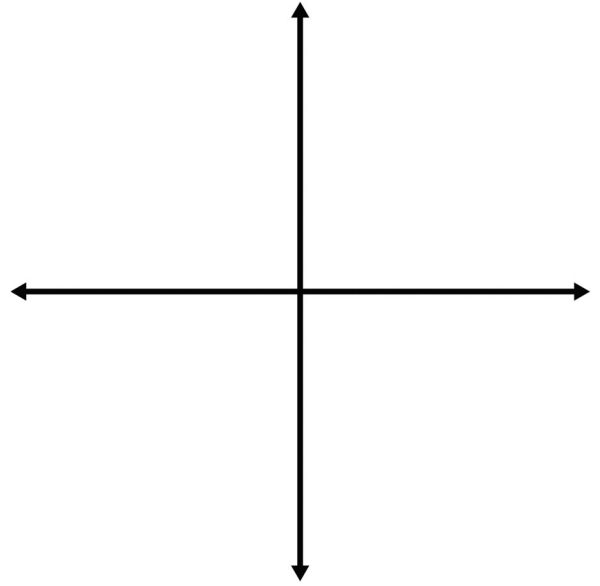x-intercepts (zeros):
{-3,-2,2}

End Behavior:

$x \to -\infty, \ f(x) \to$

$x \to \infty, \ f(x) \to$

4. $f(x) = -x^4 + 3x^3 + 10x^2$

Shape:

y-intercept:

x-intercepts (zeros):
{-2,0,0,5}

End Behavior:

$x \to -\infty, \ f(x) \to$

$x \to \infty, \ f(x) \to$

5. $p(x) = x^3 - 3x^2 - 9x + 27$

Shape:

y-intercept:

x-intercepts (zeros):
{-3,3,3}

End Behavior:

$x \rightarrow -\infty, \ f(x) \rightarrow$

$x \rightarrow \infty, \ f(x) \rightarrow$

6. $h(x) = x^6 - 5x^4 + 4x^2$

Shape:
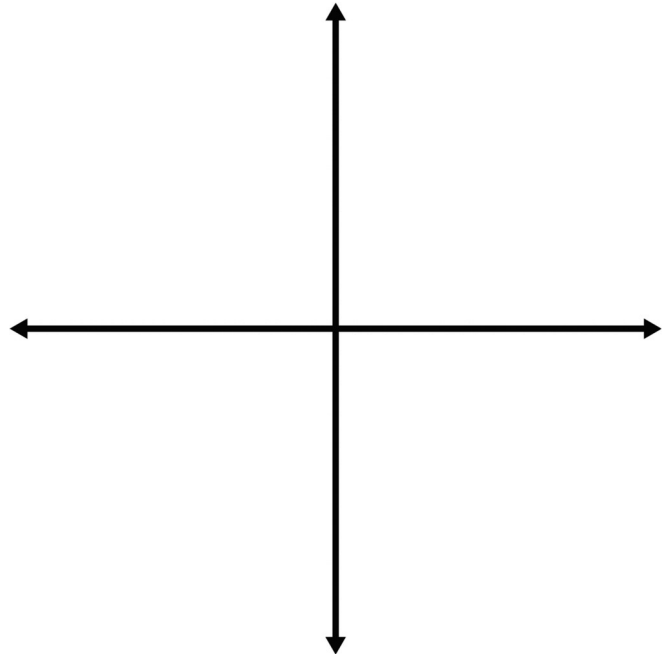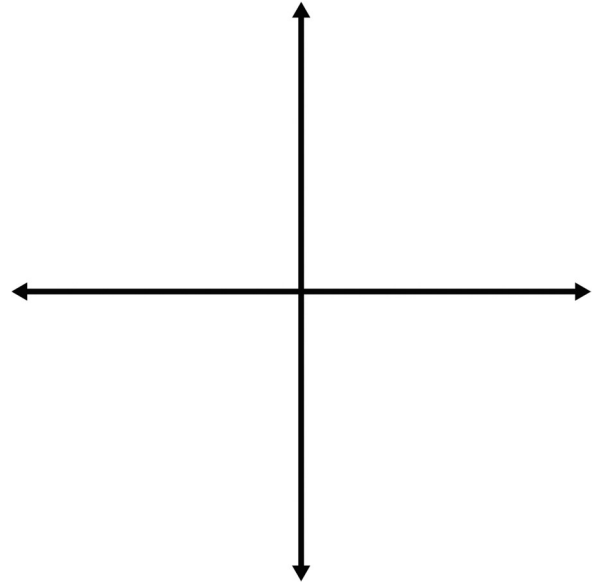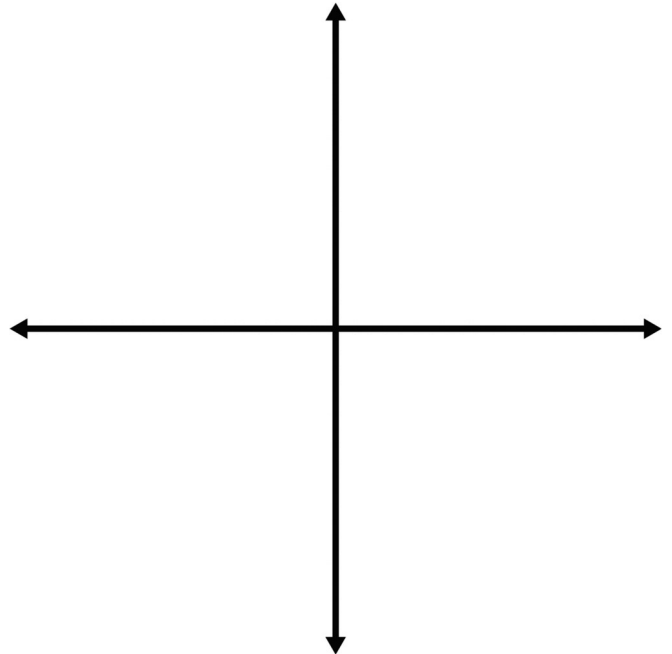

y-intercept:

x-intercepts (zeros):
{0,0,1,4}

End Behavior:

$x \rightarrow -\infty, \ f(x) \rightarrow$

$x \rightarrow \infty, \ f(x) \rightarrow$
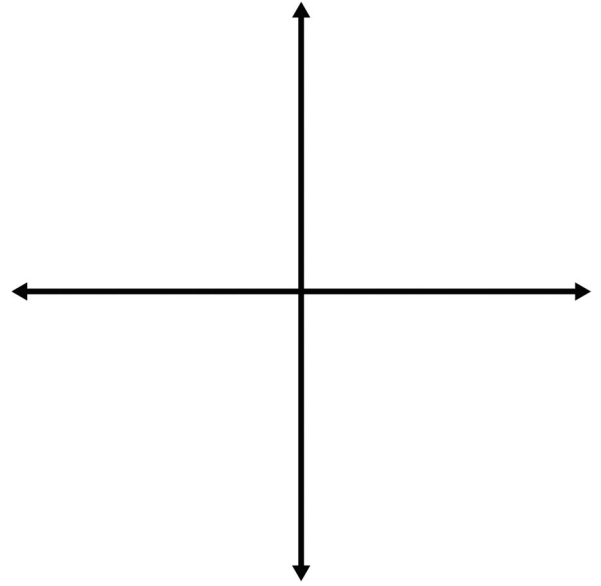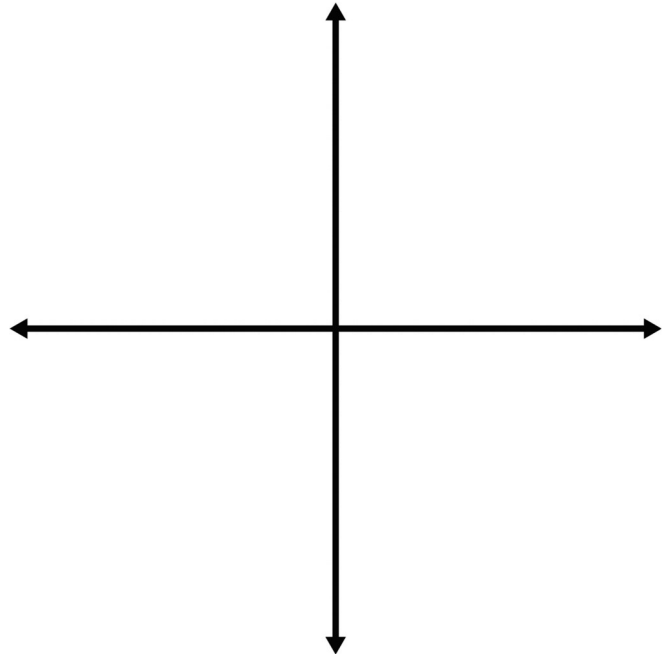
7. $f(x) = x^4 + 11x^3 + 15x^2 - 25x$
Shape:

y-intercept:

x-intercepts (zeros):
{-5,-5,0,1}

End Behavior:

$x \to -\infty, f(x) \to$

$x \to \infty, f(x) \to$

8. $g(x) = -x^5 + 5x^4 + 8x^3 - 44x^2 - 32x + 64$
Shape:

y-intercept:

x-intercepts (zeros):
{-2,-2,1,4,4}

End Behavior:

$x \to -\infty, f(x) \to$

$x \to \infty, f(x) \to$

9. $f(x) = -2x^4 - 2x^3 + 34x^2 + 42x - 72$

Shape:

y-intercept:

x-intercepts (zeros):
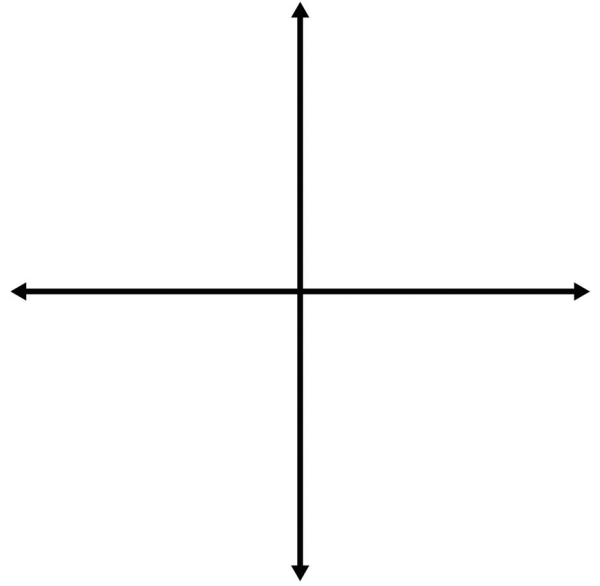{-3,-3,1,4}

End Behavior:

$x \to -\infty, \ f(x) \to$

$x \to \infty, \ f(x) \to$

10. $g(x) = -x^4 + 2x^3 + 4x^2 - 8x$

Shape:

y-intercept:

x-intercepts (zeros):
{-2,0,2,2}

End Behavior:

$x \to -\infty, \ f(x) \to$

$x \to \infty, \ f(x) \to$