LESSON 3.2 Assignment

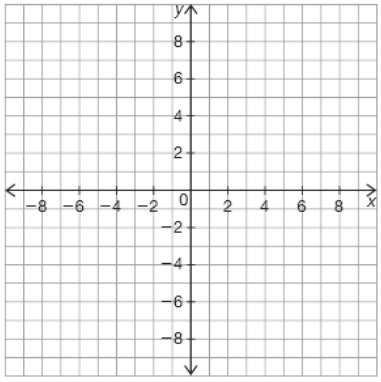
Name _____ Date _____

Polynomial Power

Power Functions

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

   a. Graph the function. Verify that the function is even, odd, or neither by comparing 3 pairs of symmetric points and by describing the end behavior of the graph.



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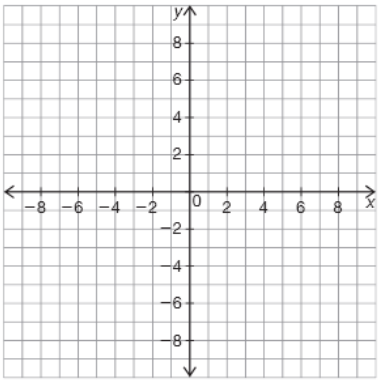
   b. Verify algebraically that the function is even, odd, or neither.

2. Consider the function $f(x) = x^3 + x$.

a. Graph the function. Verify that the function is even, odd, or neither by comparing 3 pairs of symmetric points and by describing the end behavior of the graph.



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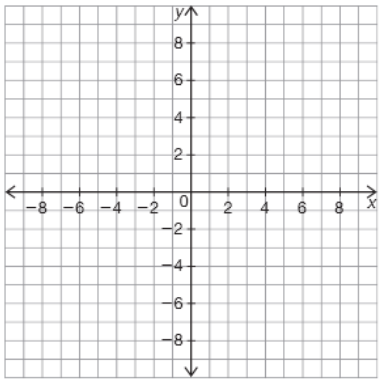
b. Verify algebraically that the function is even, odd, or neither.

Name _____ Date _____

3. Consider the function $f(x) = x^3 + x^2 - 6x$.

a. Graph the function. Verify that the function is even, odd, or neither by comparing 3 pairs of symmetric points and by describing the end behavior of the graph.



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b. Verify algebraically that the function is even, odd, or neither.

4. Consider the function $f(x) = x^a + x^b + c$, where a and b are non-negative integers greater than 0 and $a \neq b$.

a. What must be true about the values of a, b, and c in order for $f(x)$ to be an even function? Explain your reasoning.

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b. Determine specific values for a, b, and c that will make $f(x)$ an even function. Write the function $f(x)$ using those values.

5. Consider the function $f(x) = x^a + x^b + c$, where a and b are non-negative integers greater than 0 and $a \neq b$.

a. What must be true about the values of a, b, and c in order for $f(x)$ to be an odd function? Explain your reasoning.

b. Determine specific values for a, b, and c that will make $f(x)$ an odd function. Write the function $f(x)$ using those values.