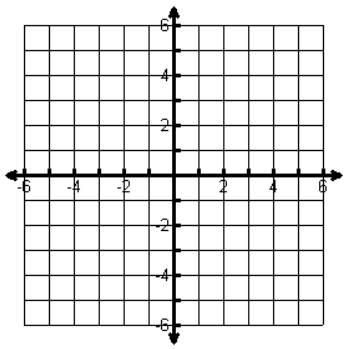
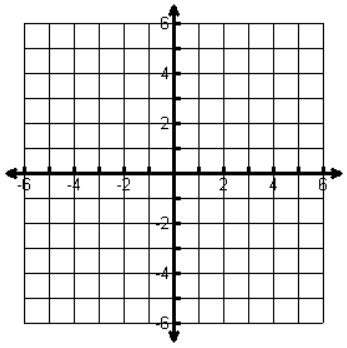
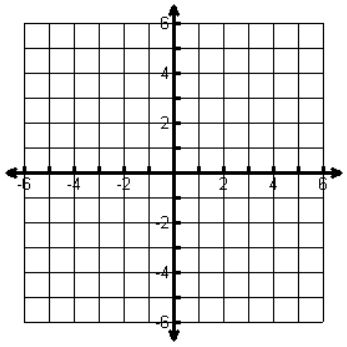
GSE Algebra I 7.7 - Review

Name: _____ Date: _____

What you need to know & be able to do	Things to remember	Problem	
Characteristics of Functions	• Domain (x-values) • Range (y-values) • Y-int (where it crosses the y-axis) • X-int (where it crosses the x-axis) • Asymptote • Rate of Change • Increasing/ Decreasing • End behavior	1. Graph the funtion $f(x) = (2)^x - 3$ 	What type of function is this? _____ Domain: _____ Range:_____ Asymptote: _____ RoC from x = 0 to 1: _____ X-Int:_____ Y-Int: _____ Inc:_____ Dec:_____ End behavior: $x \to -\infty, f(x) \to$ ___ $x \to \infty, f(x) \to$ ___
		2. Graph the function $y = -3x + 6$ 	What type of function is this? _____ Domain: _____ Range:_____ Asymptote: _____ RoC from x = 0 to 1: _____ X-Int:_____ Y-Int: _____ Inc: _____ Dec:_____ End behavior: $x \to -\infty, f(x) \to$ ___ $x \to \infty, f(x) \to$ ___
		3. Graph the function $f(x) = 2(x-1)^2 - 3$ 	What type of function is this? _____ Domain: _____ Range:_____ AOS: _____ Vertex: _____ RoC from x = 0 to 1: _____ X-Int:_____ Y-Int: _____ Inc: _____ Dec:_____ End behavior: $x \to -\infty, f(x) \to$ ___ $x \to \infty, f(x) \to$ ___

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<tr>
<td rowspan="2"><u>Comparing Functions and Sequences</u></td>
<td rowspan="2">
• Starting value= Function
• LInear $y = mx + b$
• Exponential $y = ab^x$

• First Time = Sequence
• Arithmetic: $a_n = a_1 + d(n-1)$
• Geometric: $a_n = a_1(r)^{n-1}$
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4. Taylor and Jordan are competing to see who can run the most during a week. On Day 1, Taylor runs 3 miles then increases his mileage each day by 4 miles. On Day 1, Jonathan runs ½ a mile and doubles his miles each day.

Write the rule for the sequence that represents how many miles each runner will run in terms of days.

<u>Taylor:</u>

<u>Jordan:</u>

Who will reach 10 miles first?
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5. Two companies are offering memberships for buying music. iTunes offers a $20 a month membership with a registration fee of $100. Amazon offers a $40 a month membership with a registration fee of $60.

Write an equation for each company.
<u>iTunes:</u>

<u>Amazon:</u>

Compare the rates of change and the y-intercepts.

Which company is better if you only want 2 months? 12 months?
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<td><u>Determine whether a function is even, odd, or neither</u></td>
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Graphically:
• Even = Symmetric about the y-axis
• Odd = 180 degree rotational symmetry + MUST go through origin (0,0)

Algebraically:
• Remember constants have x^0 – EVEN
• Even = all exponents are even
• Odd = all exponents are odd
• Neither = mix of even and odd exponents
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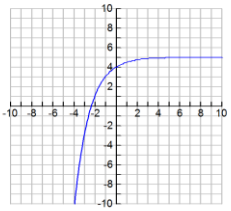
Determine whether the function is even, odd or neither.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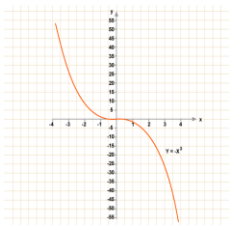
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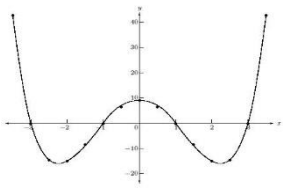
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Determine whether the function is even odd or neither.

$f(x) = 2x^3$

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

$f(x) = x^4 + 3x$

$f(x) = x^2 - 9$
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