Do Now

Write an exponential growth or decay equation and then solve your equation to answer the question

1) Annual sales for a company are $149,999 and are increasing at a rate of 6% per year. Find the annual sales after 7 years.

$f(x) = 149999(1 + .06)^x$

Growth

$f(x) = a(1 + r)^x$

$f(7) = 149999(1 + .06)^7$

$f(7) = \$225543.04$

2) Kathy plans to purchase a car that depreciates at a rate of 12% per year. The initial value of the car is $21,000. Find the value of the car after 3 years.

Decay

$f(x) = a(1 - r)^x$

$f(x) = 21000(1 - .12)^x$

$f(3) = 21000(1 - .12)^3$

$f(3) \doteq \$14310.91$

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Quadratic	Square Root	Absolute Value	Cubic	Cube Root	Exponential
$y = x^2$	$y = \sqrt{x}$	$y = |x|$	$y = x^3$	$y = \sqrt[3]{x}$	$y = 2^x$

2a. Reflect over x-axis & left 2

2b. Vertical shrink by scale factor of $\frac{1}{2}$ & down 3

$y = \sqrt{x} \quad -1$

2c. Right 5, up 1

3a. f(x) = (x + 5)² + 2

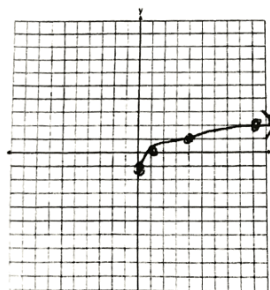3b. f(x) = -|x - 1|

3c. $f(x) = 2\sqrt{x} + 3$

3d. $f(x) = -\frac{1}{4}(x + 2)^2 - 6$

4a. $D = (-\infty, \infty) \quad R = [0, \infty)$

4b. $D = (-\infty, \infty) \quad R = [2, \infty)$

4c. $D = [0, \infty) \quad R = [3, \infty)$

5.

x	y
0	-1
1	0
4	1
9	2

$D = [0, \infty)$

$R = [-1, \infty)$

$y = \sqrt{x} - 1$

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6. B   7. C

11i. C

8a. Left 1, up 5

11ii. A

8b. Reflect over x, right 3 up 4

11iii. C

9a. horizontal shrink by factor of $\frac{1}{2}$

9b. vertical stretch by factor of 3

10. g(x) is reflected over the y-axis

x	y
-2	8
-1	1
0	0
1	-1
2	-8
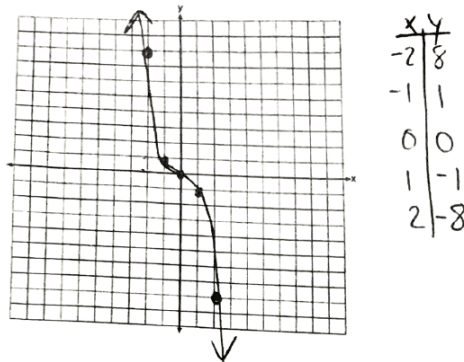
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Test Topics

- Graphing & identifying Non-linear functions
  - > Quadratic
  - > Square Root
  - > Cubic
  - > Cube Root
  - > Exponential
  - > Absolute Value
- Appropriate Domains & Range
- Writing Linear/Exponential Functions
- Growth & Decay - formula
- Transformations - ALL rules

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