

Chapter 2 Jeopardy Review

Writing a Description Using Transformation Rules

Directions: Use the given function notation to: (A) Name the parent Function and
(B) write a description of transformations.

100 points:

$$y + 5 = 7(x + 3)^2 + 2$$

$$y = 7(x + 3)^2 - 3$$

- (a) Quadratic Function
(B) stretch by factor of 7
left 3 units
down 3 units

200 points:

$$2y - 3 = 6x - 9$$

$$\frac{2y}{2} = \frac{6x - 6}{2}$$

$$y = 3x - 3$$

- (a) Linear function
(B) stretch by factor of 3
down 3

300 points:

$$-y = \sqrt{x} - 14$$

$$y = -\sqrt{x} + 14$$

- (a) radical function
(B) reflect over x-axis
up 14 units

400 points:

$$y^2 = x + 3$$

$$y = \sqrt{x + 3}$$

- (a) radical function
(B) left 3 units

500 points:

$$(\sqrt{y - 3})^2 = (x - 12)^2$$

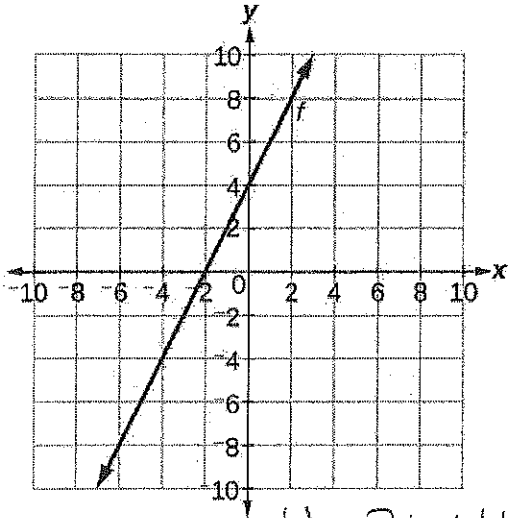
$$y - 3 = (x - 12)^2$$

$$y = (x - 12)^2 + 3$$

- (a) quadratic function
(B) right 12 units
up 3 units

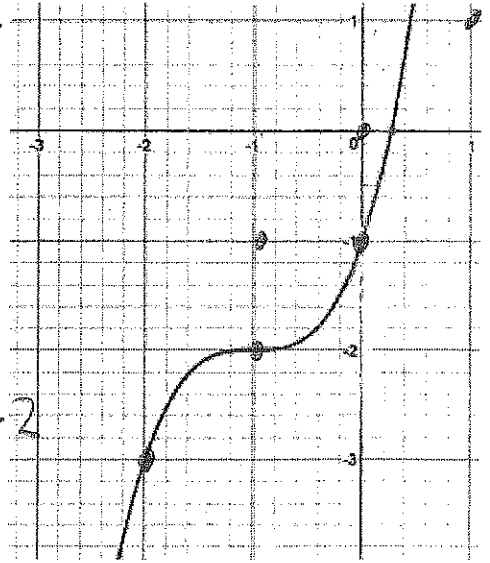
Writing An Equation Given a Graph

100 points:



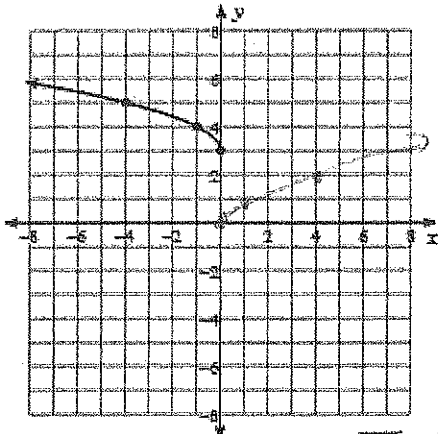
$$y = 2x + 4$$

200 points:



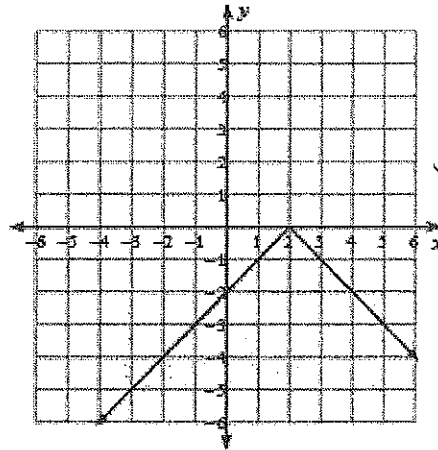
$$y = (x+1)^3 - 2$$

300 points:



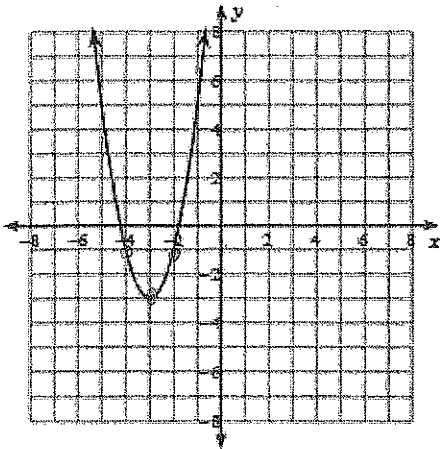
$$y = \sqrt{x} + 3$$

400 points:



$$y = -|x - 2|$$

500 points:



$$y = 2(x+3)^2 - 3$$

Domain and Range!

100 points:

Given $f(x) = \sqrt{7-x}$, the range f , in interval notation is?

$$[0, \infty)$$

200 Points:

What is the domain of $f(x) = \sqrt{x+4}$?

$$[-4, \infty)$$

300 Points:

What is the range of $h(x) = (x-3)^2 + 5$?

$$[5, \infty)$$

400 Points:

Consider the two functions below:

Function A: is formed by the parent radical function being reflected over the x -axis, and translated 7 units right and 2 units down.

$$f(x) = -\sqrt{x-7} - 2$$

Function B: $f(x) = -\sqrt{x-7}$

What is the range of both functions in interval notation?

Function A: $(-\infty, -2]$

Function B: $(-\infty, 0]$

What is the domain of both functions in interval notation?

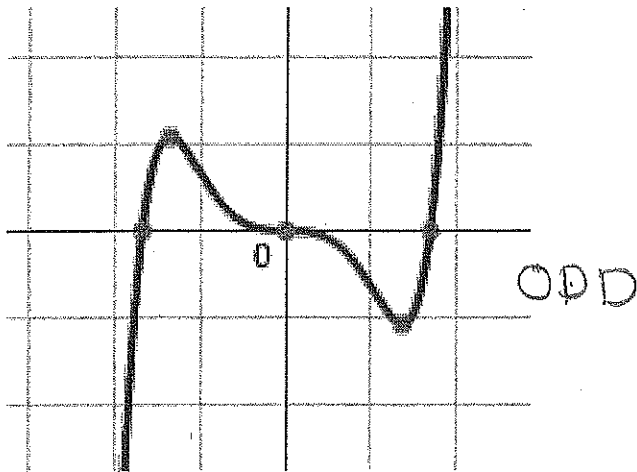
Function A: $[7, \infty)$

Function B: $[7, \infty)$

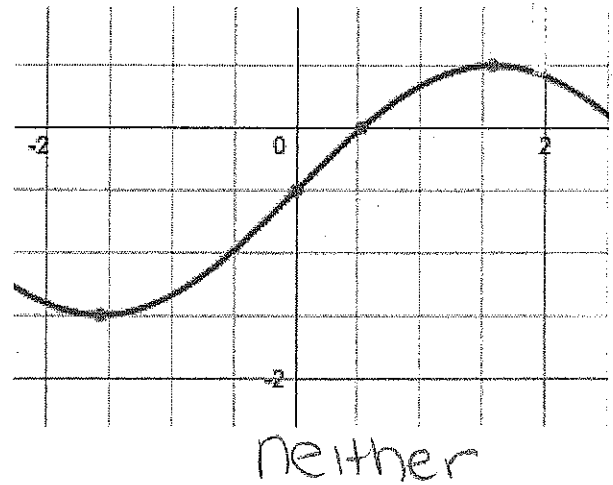
} The same!

Is the Function Even, Odd, or Neither?

100 points:



200 points:



300 points:

①

$$f(x) = (x-3)^2$$

$$(x-3)(x-3)$$

$$f(x) = \boxed{x^2 - 6x + 9}$$

②

$$f(-x) = (-x)^2 - 6(-x) + 9$$

$$\boxed{x^2 + 6x + 9}$$

③

neither

400 points:

① $t(x) = \boxed{3x^7 + 4x^3 - x}$

② $t(-x) = 3(-x)^7 + 4(-x)^3 - (-x)$

$$3(-x^7) + 4(-x^3) + x$$

$$\boxed{-3x^7 - 4x^3 + x}$$

③

ODD

500 points:

①

$$m(x) = \boxed{2x^6 - 2x^4 + 3x^2}$$

②

$$2(-x)^6 - 2(-x)^4 + 3(-x)^2$$

$$2(x^6) - 2(x^4) + 3(x^2)$$

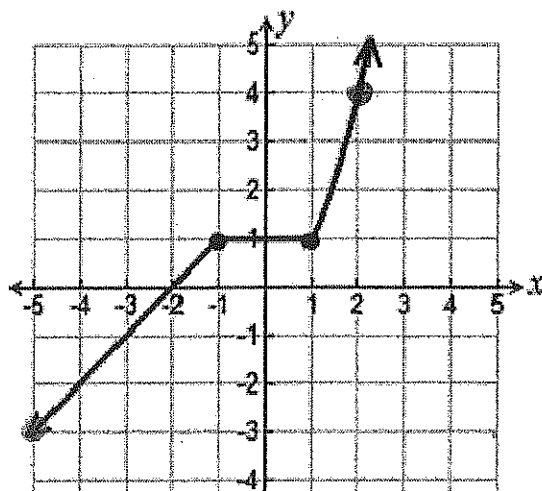
$$\boxed{2x^6 - 2x^4 + 3x^2}$$

③

Even

Generic Functions

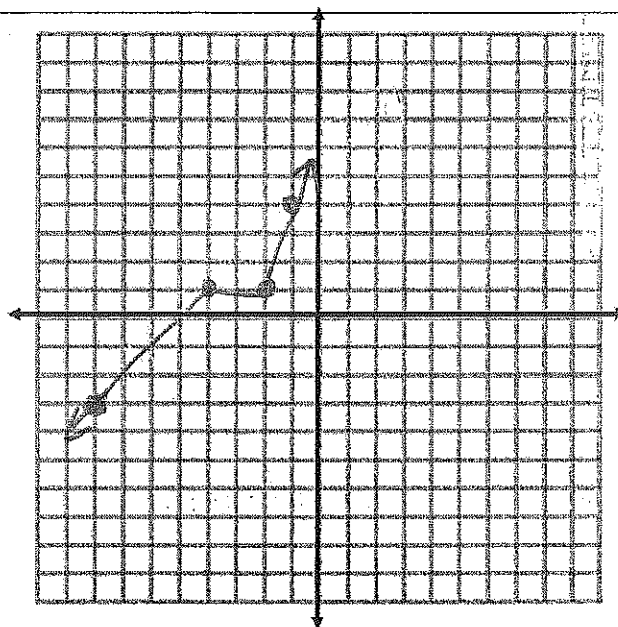
Use the following parent graph for the 100 & 200 point questions.



100 points:

$$f(x + 3)$$

left 3 units

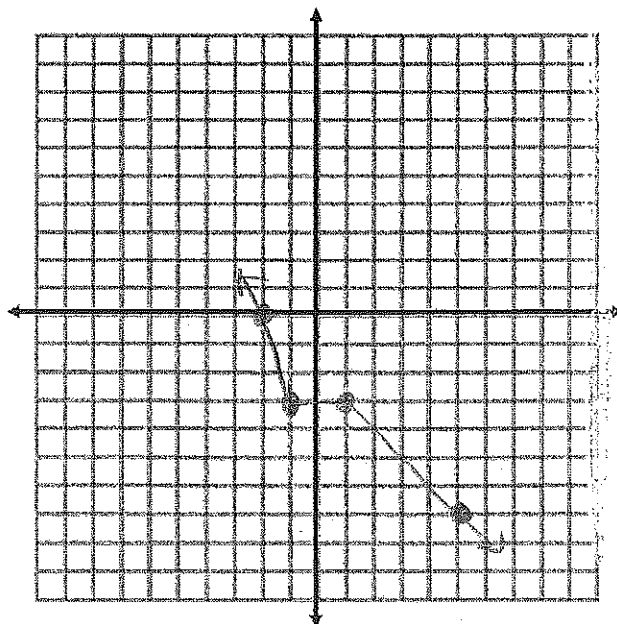


200 points:

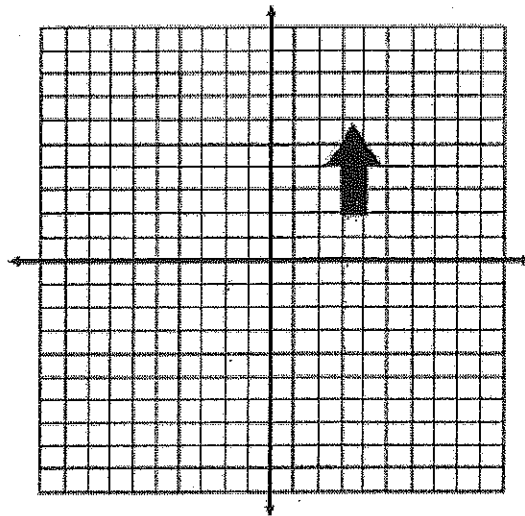
$$f(-x) - 4$$

reflect over y-axis

down 4 units



Use the following parent graph for the 300 & 400 point questions.

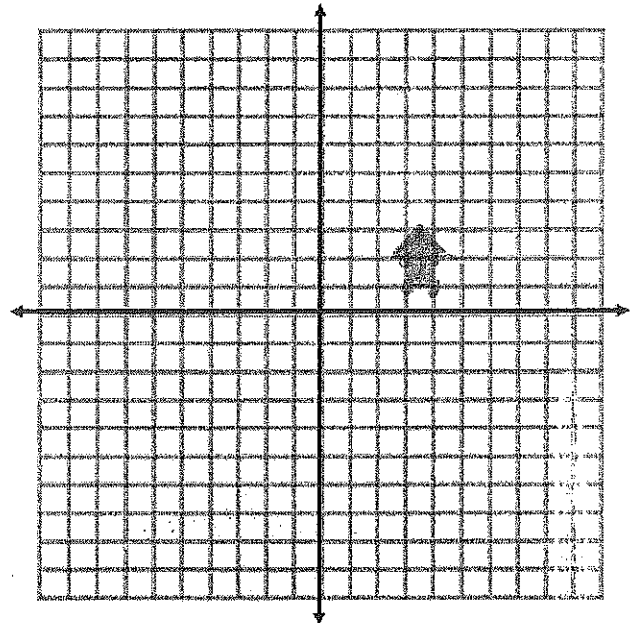


(3,2) (3,4)
(4,2) (4,4)
(3.5,6)

300 points:

$$\frac{1}{2}f(x)$$

multiply y-values by $\frac{1}{2}$



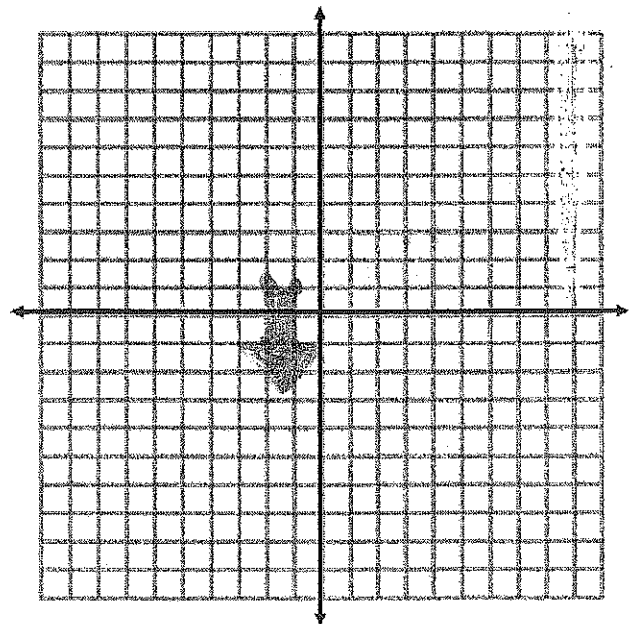
400 points:

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

reflect over x-axis

left 5 units

up 3 units

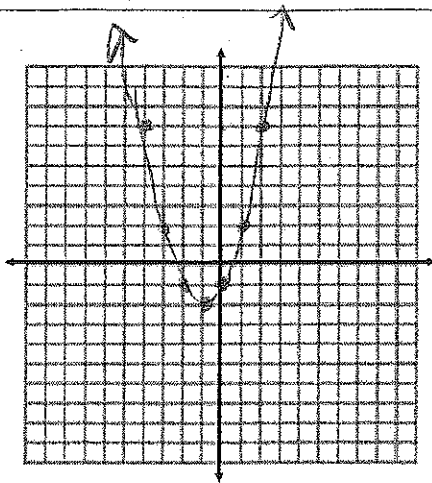


Graphing Functions

Transformed Function	Graph	Description
<p><u>100 Points:</u></p> $f(x) = \sqrt{x-2}$		<p>right 2 units</p>
<p><u>200 Points:</u></p> $f(x) = x^3 - 3$		<p>down 3 units</p>
<p><u>300 Points</u></p> <p>Absolute value function with a horizontal shift left 4 units, vertical shift down 4 units, and reflecting over the x-axis.</p>		$y = - x + 4 - 4$

400 Points:

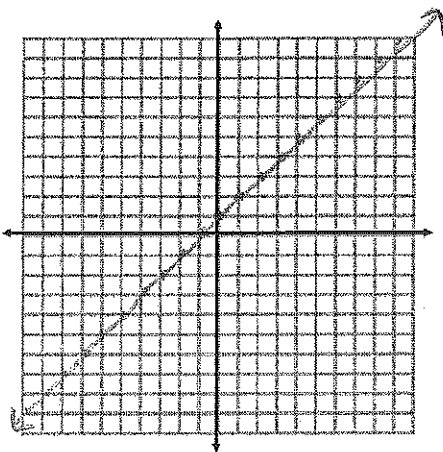
Quadratic function with a horizontal shift left 1 unit, and a vertical shift down 2 units.



$$y = (x+1)^2 - 2$$

500 Points:

Linear function with a vertical shift up 1 unit.



$$y = x + 1$$