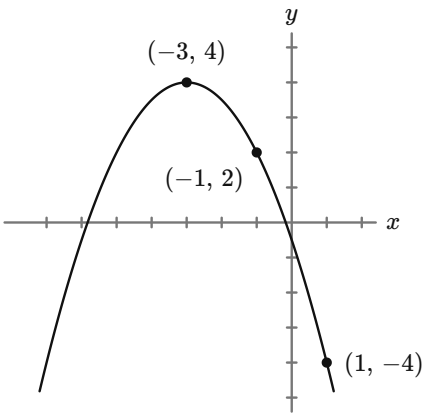
Algebra 2 Unit 1 worksheet: Finding the rule of a transformed graph or table

Name _____ Date _____ Period _____

1. The figure shows a transformed graph of $y = x^2$.

(a) Write its rule in the form $y = a(x - h)^2 + k$, and check it with a marked point you did not use.

(b) Use your rule to find the exact x-intercepts.



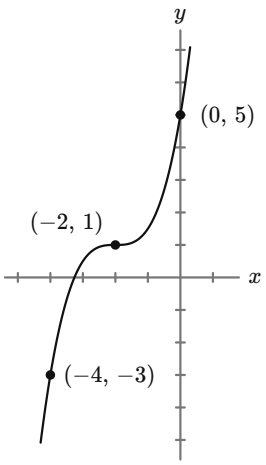
2. Each list of points lies on a graph $y = a\,f(x - h) + k$, where f is one of the parents x^2, x^3 or $\sqrt{x}$. Name the parent, write the rule, and check it with a point you did not use.

(a) $(-1, 7)$, $(0, 1)$, $(1, -1)$, $(2, 1)$, $(3, 7)$

(b) $(0, -12)$, $(1, 2)$, $(2, 4)$, $(3, 6)$, $(4, 20)$

(c) $(-2, 1)$, $(-1, 3)$, $(2, 5)$, $(7, 7)$

3. The figure shows a transformed graph of $y = x^3$. Write its rule, and check it with a marked point you did not use.



4. A square-root curve starts at $(-1, -3)$, runs right, and passes through $(3, 1)$ and $(8, 3)$.

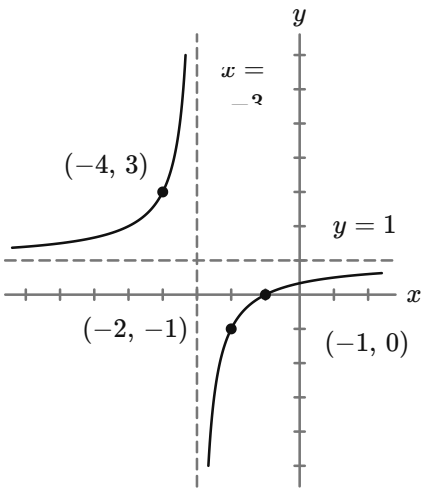
(a) Its rule can be written with a horizontal factor, as $y = \sqrt{b(x + 1)} - 3$. Use $(3, 1)$ to find b, and check your rule at $(8, 3)$.

(b) Write the same rule in the form $y = a\sqrt{x + 1} - 3$. Which move does each of the two forms describe?

(c) Could b be negative here? Explain.

Free sample from math.wiki for classroom use. Do not post. math.wiki

5. Hiro writes the rule $y = -\dfrac{2}{x-3} + 1$ for the curve in the figure. He says: "The vertical asymptote is $x = -3$, so the denominator is $x - 3$. One step right of it the curve is 2 below the horizontal asymptote $y = 1$, so $a = -2$."

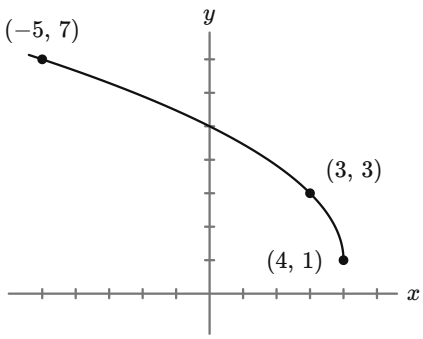


(a) Test Hiro's rule at the marked point (−2, −1).

(b) Find his mistake and write the correct rule.

(c) Check your rule at the other two marked points.

6. The figure shows a transformed graph of $y = \sqrt{x}$.



(a) Write its rule, and check it with a marked point you did not use.

(b) Mateo does not like a minus sign under the root, so he writes $y = -2\sqrt{x-4} + 1$ instead. Give the domain of his rule, and explain why it cannot be the curve in the figure.

Free sample from math.wiki for classroom use. Do not post. math.wiki