

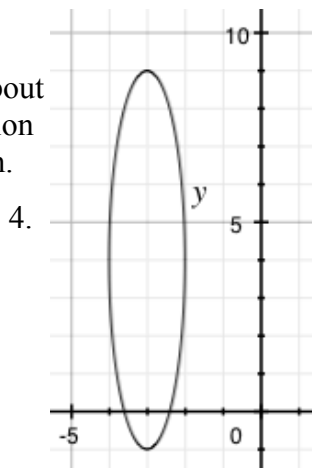
Pre-Calculus 12 Midterm Review Answers

TRANSFORMATIONS

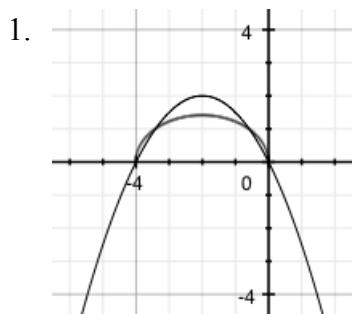
1. Reflection through x -axis, vertical compression about y -axis of factor 0.5, horizontal expansion about x -axis by factor 2, followed by horizontal translation 6 units right and vertical translation 10 units down.

2. $f^{-1}(x) = \frac{1}{x-3}$. Yes. 3. (2, 5)

5. a) $y = \sqrt{-x-3}$ b) $y = -\sqrt{x+3}$
c) $y = -\sqrt{x+7}$



RADICAL & POLYNOMIAL FUNCTIONS

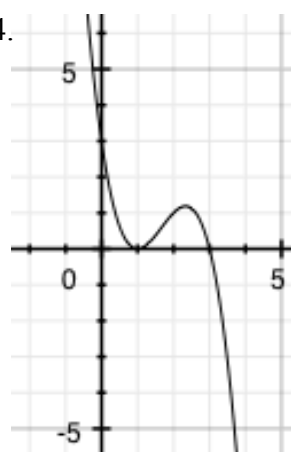


2. $(x, y) \rightarrow (0.5x, -\sqrt{y})$ 3. -3, 1 4.

4. $h(x) = -(x-1)^2(x-3)$

5. $y = -\frac{1}{4}x(x-2)^2(x+1)^3$

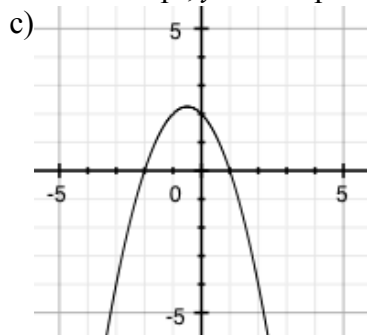
is one possible solution.



RATIONAL & COMPOSITE FUNCTIONS

1. a) 3 b) $y = \frac{-1}{x+1}, x \neq -1$; asymptotes $x = -1, y = 0$;

no x -intercept; y -intercept -1 ; point of discontinuity $(1, -0.5)$



3. $-\frac{1}{3}$

4. $y = x - 1$

$D = \{x \mid x \neq 0, x \in \mathbf{R}\}$

$R = \{y \mid y \neq -1, y \in \mathbf{R}\}$

5. a) $C(x) = \frac{0.030x + 22.5}{x + 150}$

b) 107

