

CHP 5 Review KEY

1. Evaluate the expression without using a calculator.

(a) $8^{7/3} = 128$

(b) $9^{5/2} = 243$

(c) $(-27)^{-\frac{2}{3}} = \frac{1}{9}$

2. Find the real solution(s) of the equation. Round your answer to the hundredth place (when appropriate).

(a) $x = 1.78$

(b) $x = 3$

(c) $x = -6, -10$

3. Simplify the expression.

(a) $\left(\frac{6^5}{2}\right)^3 = \frac{1}{6^3}$

(b) $\sqrt[4]{32} \cdot \sqrt[4]{8} = 4$

(c) $\frac{1}{2^{-4}\sqrt{9}} = 2 + \sqrt[4]{9}$

(d) $4^5\sqrt{8} + 3^5\sqrt{8} = 7^5\sqrt{8}$

(e) $2\sqrt{48} - \sqrt{3} = 7\sqrt{3}$

(f) $(5^{\frac{2}{3}} \cdot 2^{\frac{3}{2}})^{\frac{1}{2}} = 5^{\frac{1}{3}} \cdot 2^{\frac{3}{4}}$

4. Simplify the expression. Assume all variables are positive.

(a) $\sqrt[3]{125z^9} = 5z^3$

(b) $\frac{2^{1/4}z^{5/4}}{6z} = \frac{(2z)^{1/4}}{6}$

(c) $\sqrt{10z^5} - z^2\sqrt{40z} = -z^2\sqrt{10z}$

5. Describe the transformation of f represented by g . Then graph each function.

(a) $f(x) = \sqrt{x}, g(x) = -2\sqrt{x}$: G is a reflection in the x -axis and a vertical stretch by a factor of 2.

(b) $f(x) = \sqrt{x}, g(x) = \sqrt{-x} - 6$: G is a reflection in the y -axis and a vertical shift 6 units down.

6. Let the graph of g be a reflection in the y -axis, followed by a translation 7 units to the right of the graph of $f(x) = \sqrt{x}$. Write a rule for g . $g(x) = \sqrt{-x + 7}$

7. Solve the equation. Check your solution.

(a) $x = 62$

(b) $x = 10, 2$

(c) $x = 36$

8. Solve the inequality.

(a) $x > 9$

(b) $8 \leq x < 152$

(c) $x \geq 30$

9. Find the inverse of the function and label it $g(x)$. Then graph the function and its inverse.

(a) $g(x) = -2x + 20$

(b) $g(x) = \sqrt{x - 8}$

(c) $g(x) = \sqrt[3]{-x - 9}$