Chaparral High School
Algebra II Review for Chapter 6: Radical Functions and Rational Exponents

This is a 50 minute exam to be completed without the aid of calculators. Please show all appropriate work and place answers in lowest terms. Please work independently. This exam will be scaled to 100 points. Good Luck!

1) (2 points) **Section 6.1** Simplify the radical expression given below.

$$\sqrt{27x^4y^8z^9}$$

2) (4 points) **Section 6.2** Simplify the radical expressions given below.

a) $-2\sqrt[3]{2x^2y^2}\cdot 2\sqrt[3]{15x^5y}$

b) $\frac{\sqrt{3xy^2}}{\sqrt{5x^2y^3}}$

3) (5 points) **Section 6.3** Simplify the radical expressions given below.

a) $\left(2\sqrt{5}+3\sqrt{2}\right)\left(5\sqrt{5}+7\sqrt{2}\right)$

b) $\frac{4+\sqrt{6}}{\sqrt{2}+\sqrt{3}}$

4) (5 points) **Section 6.4** Simplify each of the expressions given below.

a) $27^{-\frac{2}{3}}$

b) $\left(x^{\frac{1}{2}}y^{-\frac{2}{3}}\right)^{-6}$

c) $\frac{64^{\frac{1}{3}}x^{\frac{2}{3}}y^{-\frac{1}{4}}}{x^{\frac{1}{2}}y^{-\frac{1}{2}}}$

5) (8 points) **Section 6.5** Solve the equation given below.

$$\sqrt{3x+7}+1=x$$

6) (8 points) **Section 6.6** Let $f(x)=2x^2-3x+1$ and $g(x)=x-4$. Find the following

a) $f(g(-3))$

b) $(f\circ g)(x)$

c) $g(f(-1))$

d) $f(x)\cdot g(x)$

e) $\frac{g(x)}{f(x)}$ and list the domain of the result.

7) (10 points) **Section 6.7** Let $f(x)=2\sqrt{x-1}+3$. Find $f^{-1}(x)$ and graph both $f(x)$ and $f^{-1}(x)$ on the same coordinate plane.

8) (8 points) **Section 6.8** Graph the function given below. List the domain and the range.

$$f(x)=\sqrt[3]{x-7}+2$$