

### Math 152 Ch. 9 Test

1. Simplify each radical expression. Assume that  $x$  and  $y$  can be any real number.

a)  $\sqrt{(5x)^2}$       b)  $\sqrt[3]{\frac{y^6}{27}}$

2. Graph each radical function. Find the domain and range.

a)  $y = \sqrt{-x}$       b)  $\sqrt[3]{x-2}$

3. Solve each equation. Write all solutions.

a)  $3\sqrt{x+4} = \sqrt{2x-1}$       b)  $\sqrt{x+1} = x+1$

4. Simplify each expression. Assume that all variables represent positive real numbers.

a)  $\frac{-16^{1/2}}{\sqrt{x^2}}$       b)  $-9^{-3/2}$       c)  $\frac{x^{5/3}x^{1/6}}{x^{1/2}}$

5. Simplify each expression. Assume that all variables represent positive real numbers.

a)  $\sqrt[3]{-54x^4y^8}$

b)  $\frac{\sqrt{24x^5}}{\sqrt{6x}}$

c)  $3\sqrt{5} + 2\sqrt{20} - \sqrt{45}$

6. Rationalize each denominator.

a)  $\frac{9}{\sqrt{3}}$

b)  $\frac{2}{\sqrt{3}-1}$

7. Simplify each expression. Assume that all variables represent positive real numbers.

a)  $(-3\sqrt{5})^2$

b)  $(\sqrt{2a}-3)^2$

c)  $(2\sqrt{5}+1)(2\sqrt{5}-1)$

d)  $(-5\sqrt{x})(2\sqrt{x^2})$

8. An archeologist wants to ship a 40-inch femur bone. Will it fit in a 6-inch-tall box that has a 25 inches by 32 inches rectangular base? Show all your work.