

Name \_\_\_\_\_

**SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.****Simplify. Assume the variable represents any real number.**

1)  $\sqrt{49x^2}$  1) \_\_\_\_\_

2)  $\sqrt[3]{-343x^3}$  2) \_\_\_\_\_

**Find the domain.**

3)  $f(x) = \sqrt[3]{x - 6}$  3) \_\_\_\_\_

4)  $f(x) = \sqrt{-8x + 15}$  4) \_\_\_\_\_

**Perform the indicated operation. Write the result using a radical.**

5)  $\sqrt[4]{w} \cdot \sqrt[5]{w^2}$  5) \_\_\_\_\_

6)  $\frac{\sqrt[7]{u^4}}{\sqrt[9]{u^4}}$  6) \_\_\_\_\_

**Simplify the radicals and then find the sum or difference. Assume all variables have nonnegative values.**

7)  $\sqrt{180} - 8\sqrt{80} - 4\sqrt{245}$  7) \_\_\_\_\_

8)  $8\sqrt[5]{m^{11}p^7} - 5m^2p\sqrt[5]{mp^2}$  8) \_\_\_\_\_

**Rationalize the denominator and simplify.**

9)  $\frac{7 - \sqrt{6}}{7 + \sqrt{6}}$

9) \_\_\_\_\_

**Solve.**

10)  $\sqrt{3x - 2} + \sqrt{11 + x} = -1$

10) \_\_\_\_\_

11)  $\sqrt{2x + 3} - \sqrt{x + 1} = 1$

11) \_\_\_\_\_

**Write the quotient in standard form.**

12)  $\frac{3 + 3i}{5 + 2i}$

12) \_\_\_\_\_

**Find the power of i.**

13)  $i^{-17}$

13) \_\_\_\_\_