

PreCalc 11 Chapter 2 Assignment – hand in for completion marks

Name: _____

Complete the following questions showing all work and steps where applicable.

1. Order these radicals from smallest to largest:

a) $\sqrt{17}$, $-3\sqrt{5}$, $4\sqrt{3}$, $-5\sqrt{2}$, $2\sqrt{6}$

b) $8\sqrt[3]{7}$, $-\sqrt[3]{7}$, $2\sqrt[3]{7}$

c) $4\sqrt[3]{11}$, $3\sqrt[5]{28}$, $2\sqrt{10}$

2. State for which values of each variable the radical is defined, then simplify the radical.

a) $\sqrt{50x^2y^7}$

b) $\sqrt[3]{-24a^6b^5}$

c) $\sqrt{45pq^2}$

3. Simplify each of the following.

a) $\sqrt{54} + \sqrt{32} - \sqrt{96} + \sqrt{18}$

b) $2x\sqrt{48x^4y} + x^3\sqrt{25xy} - 4\sqrt{27x^6y}$ $x, y \geq 0$

4. Expand and simplify fully.

a) $\sqrt{10}(\sqrt{2} - \sqrt{15})$

b) $4\sqrt{2}(2\sqrt{6} - \sqrt{3})$

5. Identify the values of the variables for which each expression is defined, then expand and simplify.

a) $2\sqrt{3x}(\sqrt{6} - 5\sqrt{x})$

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

6. Simplify each of the following by rationalizing the denominators.

a) $\frac{5\sqrt{2}-4}{\sqrt{3}}$

b) $\frac{2\sqrt{7}-5}{\sqrt{3}+1}$

7. Solve the following radical equations. Remember to show restrictions and verify solutions. If a solution doesn't check out, clearly show that.

a) $8 + \sqrt{4x - 2} = 10$

b) $\frac{\sqrt{2x - 7}}{5} = 1$

c) $\sqrt{5 - 10x} + 7 = 3$

d) $14 - \sqrt{6x} = 2$

8. A tsunami's speed can be determined using the formula $S = \sqrt{9.8d}$ where S is the speed of the tsunami in meters per second, and d is the mean depth of the water in meters. If a tsunami is travelling at a speed of 48 m/s, what is the mean depth of the water to the nearest meter?