Math 12 – Workshop #15

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1. Use the definition to simplify each radical, use the fact that for any real number y we have $\sqrt{y^2} = |y|$

   (a) $\sqrt{4}$

   (b) $\sqrt{x^2}$

   (c) $\sqrt{81x^2}$

   (d) $\sqrt{\dfrac{x^2}{4}}$

   (e) $\sqrt{\left(\dfrac{2^4}{x^2}\right)^{-1}}$

   (f) $\sqrt[3]{-27}$

2. Use the definition of the radical to simplify

$$\sqrt{x^2 - 10x + 25}$$

3. Use the definition to simplify each radical

   (a) $\sqrt[3]{8x^9y^{-3}}$

   (b) $\sqrt[5]{x^5y^{10}z^{-15}}$

4. Use the fact that $\sqrt{y^2} = |y|$ to solve the following, when applicable, graph your solutions on a number line

   (a) $\sqrt{x^2} = 7$

   (b) $\sqrt{(2x+1)^2} = 10$

   (c) $\sqrt{(3x-4)^2} = 1$

   (d) $\sqrt{\left(\dfrac{1}{2}x - 4\right)^2} > 11$

   (e) $\sqrt{x^2 - 14x + 49} < 8$

5. Use a T-table to graph the following and find the domain of each in interval notation.

   (a) $\sqrt{x} + 2$

   (b) $\sqrt{x+2}$

   (c) $\sqrt{x^2}$

6. Use a T-table to graph the following and find the domain of each in interval notation.

   (a) $\sqrt{x-2}$

   (b) $\sqrt[4]{3x-3}$

   (c) $\sqrt[4]{2x+3}$