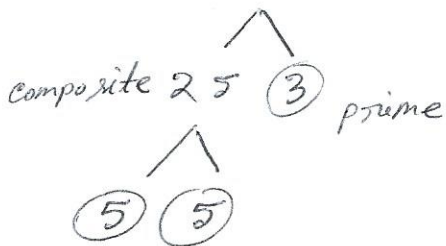


Date: 02.07.19

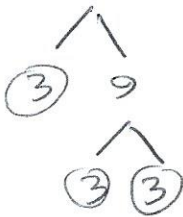
Simplifying Radical Expressions:

I. No radical may contain a factor to a power greater than or equal to the index of the radical.

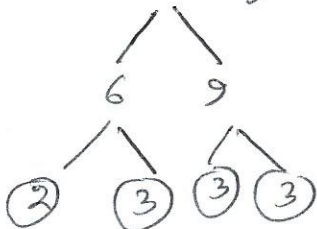
$$\sqrt[2]{75} = \sqrt[2]{3 \cdot (5 \cdot 5)} = 5\sqrt{3}$$



$$\sqrt{27x^3} = \sqrt{(3 \cdot 3 \cdot 3) \cdot (x \cdot x) \cdot x} = 3x\sqrt{3x}$$



$$\sqrt[3]{54x^3y^4} = \sqrt[3]{2 \cdot (3 \cdot 3 \cdot 3) \cdot (x \cdot x \cdot x) \cdot (y \cdot y \cdot y \cdot y)}$$



$$= 3xy \sqrt[3]{2y}$$

11. (a)

$$\sqrt{96xy^4} = \sqrt{3 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot x \cdot y \cdot y \cdot y \cdot y}$$

$$\begin{array}{c} \swarrow \searrow \\ \textcircled{2} \quad 48 \\ \swarrow \searrow \\ 6 \quad 8 \\ \swarrow \searrow \quad \swarrow \searrow \\ \textcircled{2} \quad \textcircled{3} \quad \textcircled{2} \quad 4 \\ \quad \quad \quad \swarrow \searrow \\ \quad \quad \quad \textcircled{2} \quad \textcircled{2} \end{array}$$

$$\boxed{= 4y^2\sqrt{6x}}$$

11. (b) $\sqrt{\frac{108a^4}{b^2}} = \frac{\sqrt{108a^4}}{\sqrt{b^2}}$

$$= \frac{\sqrt{2 \cdot 2 \cdot 3 \cdot 3 \cdot 3 \cdot a \cdot a \cdot a \cdot a}}{\sqrt{b \cdot b}}$$

$$= \frac{6a^2\sqrt{3}}{|b|}$$

II. No power of the radicand & the index of the radical may have a common factor other than one.

$$\begin{aligned} & \sqrt[6]{a^4} \\ &= \sqrt[6/2]{a^{4/2}} = \boxed{\sqrt[3]{a^2}} \end{aligned}$$

$$\sqrt[8]{a^2 b^4 c^6} = \boxed{\sqrt[4]{a b^2 c^3}}$$

$$\sqrt[8]{a^2 b^4 c^7} = \boxed{\sqrt[8]{a^2 b^4 c^7}}$$

$$\sqrt[9]{27 x^6} = \sqrt[9]{3^3 x^6} = \boxed{\sqrt[3]{3 x^2}}$$

$$\begin{aligned} \sqrt[8]{625 y^6} &= \sqrt[8]{5^4 y^6} = \sqrt[4]{5^2 y^3} \\ &= \boxed{\sqrt[4]{25 y^3}} \end{aligned}$$