Parts of a radical : $\sqrt[n]{b}$

    1.

    2.

    3.

(defin) root ÷

    Square root -

    principle square root -

    negative square root -

    (Eg) $\sqrt{169}$

    (Eg) the negative square root of $\sqrt{169}$

    Note

Types of square roots

    ① Rational

    ② Irrational

    ③ Not Real

    (Eg) Is it rational, irrational, or not real?

        ① $\sqrt{169}$

        ② $\sqrt{3267}$

        ③ $\sqrt{-3}$

    Class:

        ① $\sqrt{27}$

        ② $\sqrt{36}$

        ③ $\sqrt{-27}$

| defin | nth roots –

Notes
①
②

Ⓔⓖ $\sqrt[4]{675}$

Class
① $\sqrt[3]{64}$ ③ $\sqrt[4]{-81}$
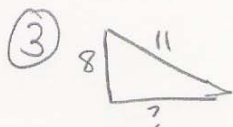
② $\sqrt[3]{-27}$ ④ $\sqrt[5]{-243}$

(defin) Pythagorean Thm –

Ⓔⓖ find the hypotenuse of a right △ when one leg is 15 inches and the other leg is 37 inches.

Class: find the length of the unknown side
① a=7, b=24

② c=15, b=13

③

| defin | distance formula –

Ⓔⓖ Find the distance between $(-2, 7)$ & $(5, 19)$

①   "   "   " $(-6, 3)$ & $(-2, -4)$

Defin Product Rule for radicals

    Eg) $\sqrt{6} \cdot \sqrt{11}$

    ① $\sqrt{44} \cdot \sqrt{11}$

    ② $\sqrt{26} \cdot \sqrt{13} \cdot \sqrt{2}$

Defin Reversed Product rule

    Eg) $\sqrt{63}$

    ① $\sqrt{1568}$

Defin Quotient Rule for radicals

    Eg) $\sqrt[3]{\dfrac{8}{27}}$

    ① $\dfrac{\sqrt[3]{1125}}{\sqrt[3]{9}}$

Defin Reversed Quotient Rule

    Eg) $\dfrac{\sqrt{54}}{\sqrt{6}}$

    ① $\sqrt{\dfrac{10}{49}}$

    ② $\dfrac{\sqrt{48}}{\sqrt{3}}$

Defin Radical Simplification

Eg $\sqrt[3]{81x^8y^{12}z^2}$

① $\sqrt{x^6}$

② $\sqrt{100p^8}$

③ $\sqrt[4]{\dfrac{16}{625}}$

④ $\sqrt[3]{z^9}$

⑤ $\sqrt[3]{54t^5}$

⑥ $\sqrt[3]{\dfrac{a^{15}}{64}}$

Chapter 8.3   Adding & Subt. Radicals

[Defin] Like Radicals

[Method] Add & Subt Radicals

1.

2.

Eg $8\sqrt{5} + 2\sqrt{5}$

① $7\sqrt{2} + 5\sqrt{2}$

② $\sqrt{27} + \sqrt{12}$

③ $\sqrt{27} + \sqrt{288} - \sqrt{48} - \sqrt{162}$

④ $\dfrac{2\sqrt[3]{4}}{7} + \dfrac{\sqrt[3]{108}}{14}$

⑤ $y\sqrt{72} - \sqrt{18y^2}$

⑥ $\sqrt[3]{81x^4} + 5\sqrt[3]{24x^4}$

Chapter 8.4   Rationalizing the Den.

[Method] Radical Simplification Rules

1.

  (Eg) $\sqrt[3]{27x^6y^{11}z^{16}}$

2.

  (Eg) $\sqrt[4]{729x^6y^{14}z^2}$

3.

  (Eg) $\sqrt[3]{\dfrac{9}{64}}$

4.

  (Eg) $\dfrac{\sqrt{5x}}{\sqrt{y}}$ ① $\dfrac{-12}{\sqrt{32}}$

Note

[Defin] Rationalizing the den -

Fundamental Property of fractions -

[Method] Rat. the den.-

① $\sqrt{\dfrac{5}{18}}$ ② $\dfrac{\sqrt{5p}}{\sqrt{q}}$

③ $\sqrt{\dfrac{5r^2t^2}{7}}$

④ $\sqrt[3]{\dfrac{5}{6}}$

⑤ $\dfrac{\sqrt[3]{2}}{\sqrt[3]{3}}$