PreCalc 11 Final Review Chp 2

Note Title 2016-05-25

2.1) Absolute Value - is a function

$x^2 = 64$
$|x| = \sqrt{64}$
$x = \pm 8$

but $x = \sqrt{64}$
$x = 8$ no $\pm$

so $\sqrt{x^2} = |x|$

Evaluate $|\ |$ as ( ) for BEDMAS

2.2) Simplifying Radical Expressions.

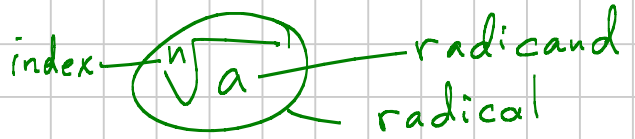
Power Laws: $a^m \cdot a^n = a^{m+n}$ $\frac{a^m}{a^n} = a^{m-n}$ $(a^m)^n = a^{mn}$

$\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$ $(ab)^n = a^n b^n$ $\frac{1}{a^n} = a^{-n}$

$\sqrt[n]{a} \cdot \sqrt[n]{a} = a^{1/n + 1/n}$ $\frac{\sqrt[m]{a}}{\sqrt[n]{a}} = a^{1/m - 1/n}$ $\left(\sqrt[n]{a}\right)^n = a^{n/m}$

$\sqrt[m]{\frac{a}{b}} = \frac{\sqrt[m]{a}}{\sqrt[m]{b}}$ $\sqrt[m]{ab} = \sqrt[m]{a}\sqrt[m]{b}$ $\frac{1}{\sqrt[n]{a}} = a^{-1/n}$

$a\sqrt[n]{b} = \sqrt[n]{a^n b}$



comparing radicals - convert all mixed radicals to entire radicals

When index is even, D: radicand ≥ 0

" odd, D: $x \in \mathbb{R}$

2.3) Adding & Subtracting Radicals - group like radicals

May need to simplify radicals first - change to mixed

Variables are easier, just subtract the multiples of the index. eg) $\sqrt[3]{a^7} = a\sqrt[3]{a^4} = a^2\sqrt[3]{a}$

$\sqrt[n]{x^n} = |x|$, when n is even.

Always reduce fractional exponents before evaluating

eg) $(-27)^{2/6} = ((-3)^3)^{1/3} = -3$

2.4) Multiply & Dividing Radicals

Use FOIL (distributing)

Conjugates form a difference of squares: $(a+b)(a-b) = a^2-b^2$

- This eliminate radicals.

Binomial squared does not eliminate radicals.

Answers must be rationalized (rationalize the denominator)

- multiply by $\frac{den}{den}$ ← if monomial

$\frac{conj}{conj}$ ← if binomial.

2.5) Solving Radicals Equations

- Isolate radical, then square both sides.
- If both sides are different radicals, square both sides.

Check for extraneous roots with most restrictive domain.