

BE - Precalc (Thursday 11-12-09

① $125^{\frac{1}{3}} = ?$

② $(81c^4)^{\frac{1}{4}} = ?$

① $\sqrt[3]{125} = \boxed{5}$ OR $(5^3)^{\frac{1}{3}} = \boxed{5^1}$

② $\sqrt[4]{81c^4} = \sqrt[4]{81} \cdot \sqrt[4]{c^4}$

$3|c|$



$\sqrt[\epsilon]{c^\epsilon} = c^{\odot}$

" $\epsilon 1 \quad \epsilon 1 \quad 00$ "



ALWAYS
POSITIVE



MUST "RESTORE"
TO ALWAYS
POSITIVE

③ $x^2 = 25$

$\sqrt{x^2} = \sqrt{25}$ " $\epsilon 1 \epsilon 1 00$ "

$|x| = 5$

$x = 5 \quad \left\{ \begin{array}{l} \downarrow \\ x = -5 \end{array} \right.$

$\therefore \boxed{x = \pm 5}$

Ch. 11-1 Real Exponents

EX 4
pg 697 (A) $125^{\frac{1}{3}} = \sqrt[3]{125} = \boxed{5}$

or $(125)^{\frac{1}{3}} = (5^3)^{\frac{1}{3}} = 5^{\frac{3}{3}} = \boxed{5^1} \checkmark$
Recognize THIS
is 5^3

(B) $\sqrt{14} \cdot \sqrt{7} = \sqrt{98} = \sqrt{49 \cdot 2} = \boxed{7\sqrt{2}}$
 $\wedge$
49 2

or $\sqrt{7} \cdot \sqrt{2} \cdot \sqrt{7} = \boxed{7\sqrt{2}}$

or $7^{\frac{1}{2}} \cdot 2^{\frac{1}{2}} \cdot 7^{\frac{1}{2}} = 2^{\frac{1}{2}} 7^{\frac{1}{2}} 7^{\frac{1}{2}}$

$2^{\frac{1}{2}} \cdot 7 = \boxed{7\sqrt{2}} -$

EX 5 $(81c^4)^{\frac{1}{4}} = \sqrt[4]{81c^4} = \boxed{3|c|}$
818100

or $81^{\frac{1}{4}} c^{\frac{4}{4}}$

$= (3^4)^{\frac{1}{4}} c^1$

$3^1 c^1$

NOTE: $\sqrt{x^2} = |x|$
 $x = \pm x$

Ex 6
Pg 698

(A) $625^{\frac{3}{4}}$

$$\sqrt[4]{625^3} = \left(\sqrt[4]{625}\right)^3 \quad \text{MUCH EASIER}$$

$$= (5)^3 = \boxed{125}$$

Ex 7 (A)

$$\sqrt[3]{64s^9t^{15}} = \boxed{4s^3t^5}$$

$$\begin{array}{ccc} \text{///} & & \text{///} \\ 444 & \text{///} & ttttt \\ s^3s^3s^3 & & \end{array}$$

OR $64^{\frac{1}{3}}(s^9)^{\frac{1}{3}}(t^{15})^{\frac{1}{3}} = 4s^{\frac{9}{3}}t^{\frac{15}{3}}$

$$= \boxed{4s^3t^5} \checkmark$$

Ex 8
Pg 699

$$\sqrt{r^7s^{25}t^3}$$

$$\begin{array}{ccc} \wedge & \wedge & \wedge \\ r^6r & s^{24}s & t^2t \\ \hline \end{array}$$

$$= \boxed{r^3s^{12}t\sqrt{rst}}$$

NOT EIEIOO - NOT BOOK SAYS YES

* Solve
Ex 9

$$734 = x^{\frac{3}{4}} + 5$$

$$729 = x^{\frac{3}{4}}$$

$$729^{\frac{4}{3}} = \left(x^{\frac{3}{4}}\right)^{\frac{4}{3}}$$

$$\boxed{729^{\frac{4}{3}} = x}$$

NO CALCULATOR

Raise each side to to $\frac{4}{3}$ power, why?

$$\therefore x = \left(\sqrt[3]{729}\right)^4 = \boxed{6561}$$

CALCULATOR

Homework: Pg 700 #4-17 Pg 701 #65-66