Digits 3-1/3-2
Perfect Squares & Cubes

10/10/2018

① Goal: I will be able to determine the square root and cube root of numbers

Tool Bag: Formulas, equations, Vocabulary, etc	Here's How…Notes & Examples
Inverse Operations	"Opposite" Addition → Subtraction $x+5=7$ $x+5-5=7-5$ Multiplication → Division $6x=42 \rightarrow \frac{6x}{6}=\frac{42}{6}$

②

	Square → Square Root $x^2=16$ $\sqrt{x^2}=\sqrt{16}$ Cube → Cube Root $x^3=8$ $\sqrt[3]{x^3}=x$
Perfect Square	1 4 9 16 25 36 49 64 81 100 1·1 2·2 121 144 169 196 225 400 900 1600 20·20 30·30 40·40 2500 3600

③

Examples	$x^2=16$ $x=4$ $4\cdot4=16$ $(-4)(-4)=16$ $x=4,-4$ $x^2=\frac{16}{81}$ $\frac{4}{9}\cdot\frac{4}{9}=\frac{16}{81}$ $\sqrt{x^2}=\sqrt{\frac{16}{81}}=\frac{\sqrt{16}}{\sqrt{81}}=\frac{4}{9}$ $\left(-\frac{4}{9}\right)\left(-\frac{4}{9}\right)=\frac{16}{81}$ $x=\frac{4}{9},\frac{-4}{9}$
$\frac{2}{3}\cdot\frac{3}{5}=\frac{2\cdot3}{3\cdot5}$	

④

Perfect Cubes	A number times itself 3 times
$1^3=1\cdot1\cdot1=1$ $2^3=2\cdot2\cdot2=8$ $3^3=3\cdot3\cdot3=27$ $4^3=4\cdot4\cdot4=64$ $5^3=5\cdot5\cdot5=125$	Examples of Perfect Cubes
Could −8 be a perfect cube? Yes because $(-2)(-2)(-2)=-8$	

⑤

Cube Root	$\sqrt[3]{\ }$ means taking the cube root
Examples	$\sqrt[3]{27}=3$ $3^3=3\cdot3\cdot3=27$ $\sqrt[3]{-27}=-3$ $(-3)^3=(-3)(-3)(-3)=-27$ $x^3=\frac{8}{64}$ $\sqrt[3]{x^3}=\sqrt[3]{\frac{8}{64}}$ $=\frac{\sqrt[3]{8}}{\sqrt[3]{64}}=\frac{2}{4}=\frac{1}{2}$