

Unit 3 Day 1

P.1

Simplifying Radicals

radical $\rightarrow \sqrt{\quad}$ (square root)

PERFECT SQUARES!

1 4 9 16 25 36

49 64 81 100 121 144

$$\begin{array}{r} \sqrt{20} = 2\sqrt{5} \\ \swarrow \searrow \\ 4 \cdot 5 \\ \swarrow \searrow \quad | \\ \textcircled{2 \cdot 2} \cdot 5 \end{array}$$

$$\sqrt{27} = \sqrt{9 \cdot 3} = \sqrt{9} \cdot \sqrt{3} = 3\sqrt{3}$$

$$\sqrt{150} = \sqrt{25 \cdot 6} = \sqrt{25} \cdot \sqrt{6} = 5\sqrt{6}$$

$$\sqrt{500} = \sqrt{100 \cdot 5} = \sqrt{100} \cdot \sqrt{5} = 10\sqrt{5}$$

$$\sqrt{40} = \sqrt{4 \cdot 10} = \sqrt{4} \cdot \sqrt{10} = 2\sqrt{10}$$

Complex Numbers ⁱ 'i' imaginary number

$$i = \sqrt{-1}$$

EX. $\sqrt{-121} = \boxed{11i}$

$$\sqrt{-1 \cdot 121}$$

$$\sqrt{-28} = \sqrt{-1 \cdot 4 \cdot 7}$$

$$= \sqrt{-1} \cdot \sqrt{4} \cdot \sqrt{7}$$

$$= \boxed{2i\sqrt{7}} \quad (2\sqrt{7}i)$$

$$3\sqrt{-54} = 3\sqrt{-1 \cdot 9 \cdot 6} = 3 \cdot i \cdot 3\sqrt{6}$$

$$= \boxed{9i\sqrt{6}}$$

$$5\sqrt{-72} = 5\sqrt{-1 \cdot 36 \cdot 2} = 5 \cdot i \cdot 6\sqrt{2}$$

$$= \boxed{30i\sqrt{2}}$$

$$i = \sqrt{-1}$$

$$i^2 = -1$$

$$i^3 = -i$$

$$5(2i) = 10i$$

$$(5i)(2i) = 10i^2$$

$$= 10(-1) = -10$$

$$(-1 \cdot i) / (3+2i) + (-5-6i) = -2-4i$$