# Chapter 8.5 Simplification

**Method** Multiplication of Radicals

1.

2.

3.

Eg $(\sqrt{2}+5\sqrt{3})(\sqrt{3}-2\sqrt{2})$ ① $(\sqrt{5}-3)^2$

② $(4\sqrt{2}+5)^2$ ③ $(2+\sqrt{x})^2$

**Defin** Conjugate of a Binomial

Eg $(\sqrt{3}-2)(\sqrt{3}+2)$ ① $(5+\sqrt{3})(5-\sqrt{3})$

② $(\sqrt{5}+\sqrt{7})(\sqrt{5}-\sqrt{7})$

**Defin** Rationalizing Binomial Denominator

1.

2.

3.

(Eg) $\frac{3}{2-\sqrt{5}}$

① $\frac{\sqrt{5}+3}{2-\sqrt{5}}$

② $\frac{3}{2+\sqrt{t}}$

③ $\frac{5\sqrt{3}-15}{10}$

## Chapter 8.6 Solving Equations

**Defin** Power Property of Equality

Solns:

(Eg) $\sqrt{9-x}=4$

① $\sqrt{3x+9}=2\sqrt{x}$

② $\sqrt{y}+4=0$

**Method** Solving a radical equation

1.
2.
3.
4.
5.
6.

(Eg) $\sqrt{2s+7} - \sqrt{5} = 0$

① $x = \sqrt{x^2 - 4x - 16}$

② $2x - 1 = \sqrt{10x + 9}$

③ $\sqrt{25x} - 6 = x$

(Eg) $\sqrt{x+1} - \sqrt{x-4} = 1$

① $\sqrt{x} - 4 = \sqrt{x - 32}$

Word Problems

#66, 68, 70, 72, 74

(Eg)

# Chapter 8.7 Rational Exponents

Defin $b^{1/n}$

$b^{m/n}$

$b^{-m/n}$

Summary

1. Product Rule
2. Quotient Rule
3. Power Rule
4. Exponent Power Rule
5. Zero Power Rule
6. Negative Exponent Rule

Eg $1000^{1/3}$ ① $8^{2/3}$ ② $25^{3/2}$

③ $4^{5/2}$ ④ $-16^{3/4}$ ⑤ $36^{-3/2}$

Eg $7^{1/3} \cdot 7^{2/3}$ ① $\frac{9^{2/3}}{9^{-1/3}}$ ② $\left(\frac{27}{8}\right)^{5/3}$

③ $(a^{2/3}b^{1/3}c^{2})^{6}$ ④ $\frac{r^{2/3}r^{1/3}}{r^{-1}}$ ① $\sqrt[4]{12^2}$ ② $\left(\sqrt[6]{x}\right)^3$

# 9.3 Quadratic formula

## Quadratic Equation

eg $x^2+2x+1=0$

eg $2x^2+x-5=0$

eg $ax^2+bx+c=0$

## Completing the square.

eg $(x+3)(x+3)=0$

eg $x^2+2x=0$

eg $(x+d)^2=0$

(eg) $2x^2+x-5$

(eg) $9x^2+6x+1=0$

(eg) $r^2-8r-9=0$

(eg) $4x^2-x+4=x+7$

(eg) $(2x+1)(x+1)=7$

(eg) $\frac{2}{3}z^2-\frac{4}{9}z=\frac{1}{3}$