**Chp 4 Roots and Powers (Radicals and Exponents)**

**4.2 Rational and Irrational Numbers**

**NATURAL NUMBERS (N) INTEGERS (I)**

*Example:1,2,3,4…* **WHOLE NUMBERS**  *Example:…-2,-1,0,1,2…*

*Example:0,1,2,3…*

IRRATIONAL NUMBERS () RATIONAL NUMBERS (Q)

1) ***when converted to decimal form they are:*** 1) ***numbers that can be written \*nonterminating and in fraction form. A quotient of***

***\*non–repeating integers***

***therefore they cannot be written as fractions*** 2) ***as radicals they DO have exact roots***

2) ***as radicals they DON"T have exact roots*** 3) ***when converted to decimal form***

***they:***

***\*terminate(end) or***

\****repeat (pattern)***

*Examples: Examples:*

= 3.1415… -5 =

= 1.41421… 0.25= 1.7099… = 3

0. =

- 2 =

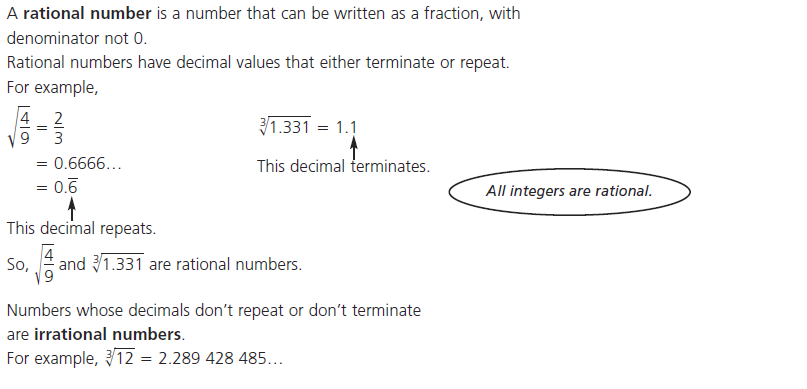
5

= 4

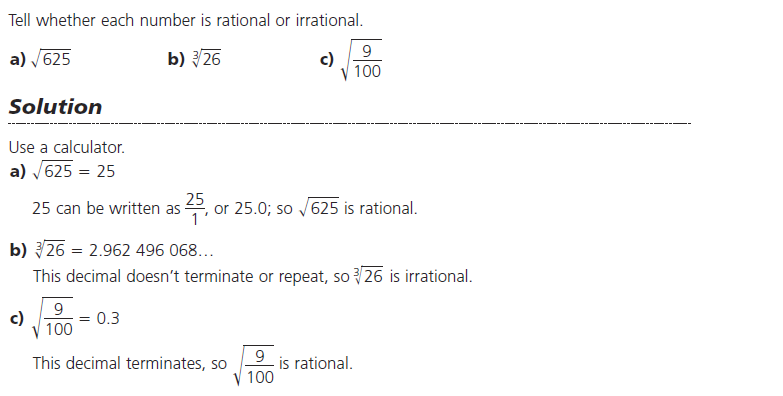
# REAL NUMBERS

-*all numbers that can be expressed in decimal form*

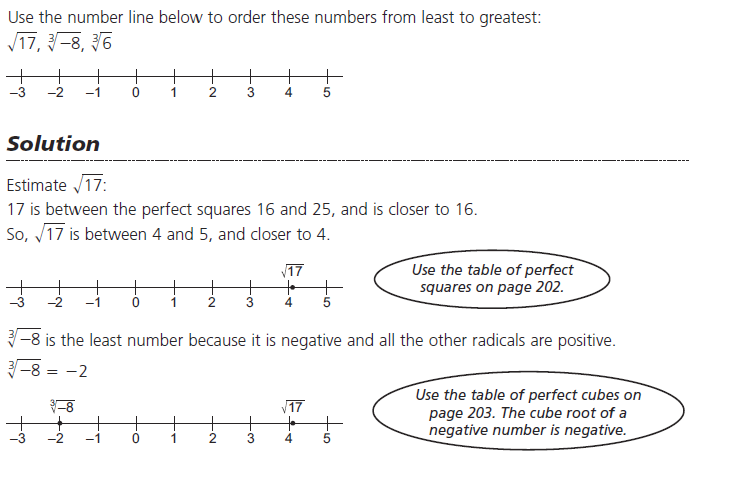


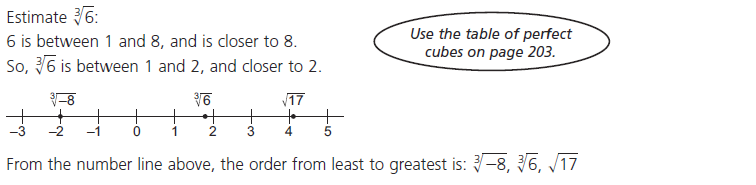


**Ex.1**

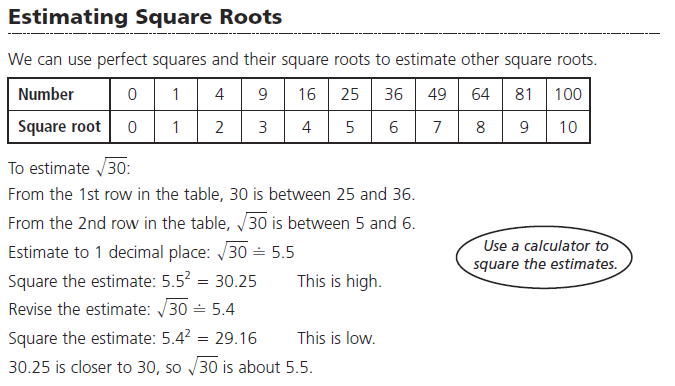


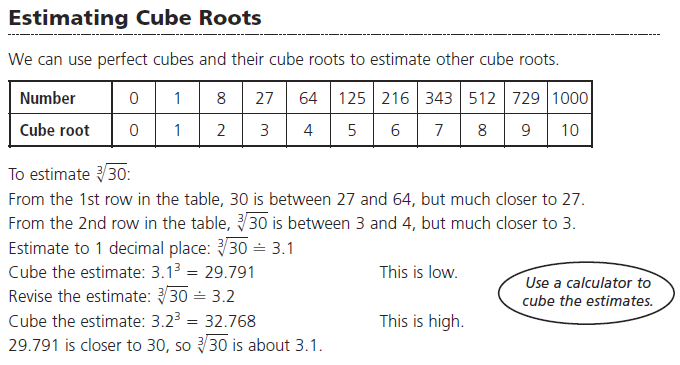
**Ex.2**





Perfect Square Numbers and Perfect Cube Numbers are used a lot in this chapters, so you should know most of them from memory. I should know the perfect square numbers up to , and the perfect cubes up to at least

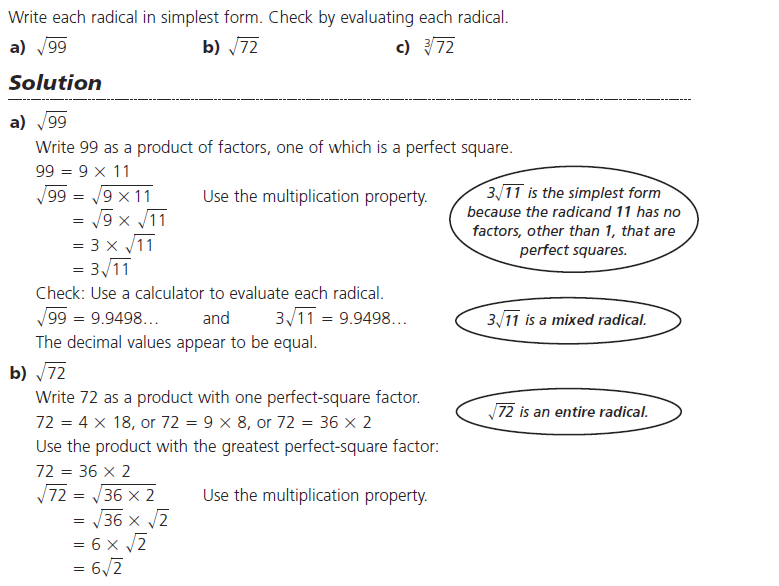


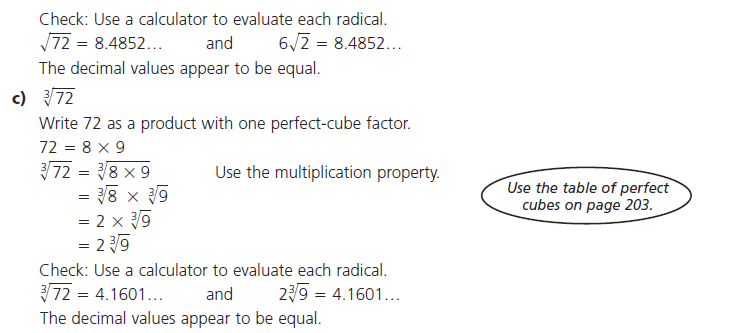


*Do Qn's p.221 #1-5*

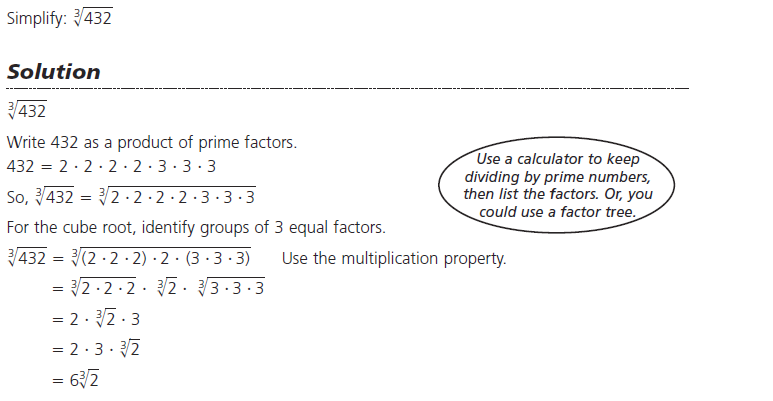
**4.3 Mixed and Entire Radicals** – Again you need to know your perfect Square/Cube numbers from memory. Most of these questions are considered to be "non-calculator questions".

**Ex.1** Entired to Mixed Radicals

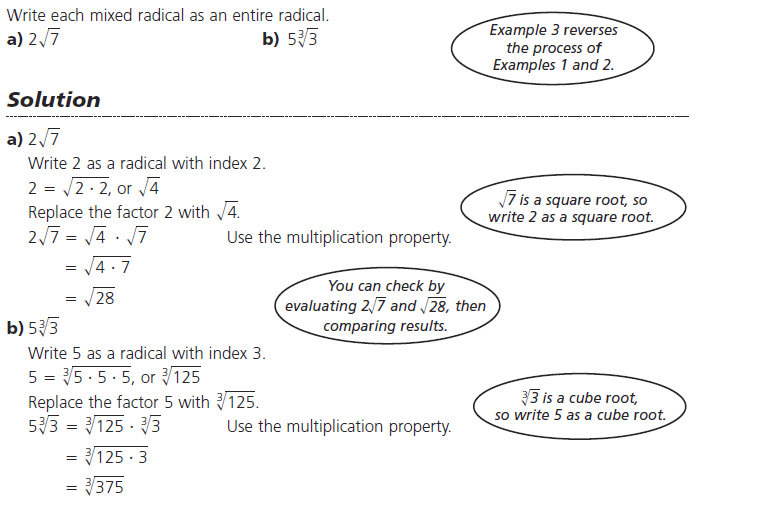




**Ex.2**



**Mixed to Entire Radicals**

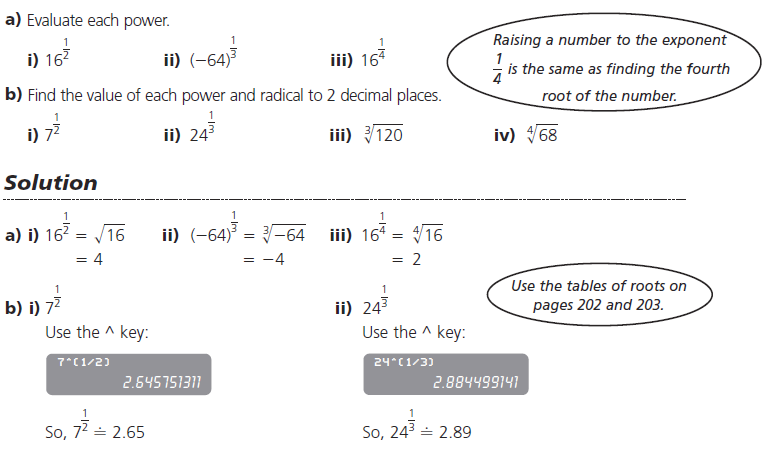


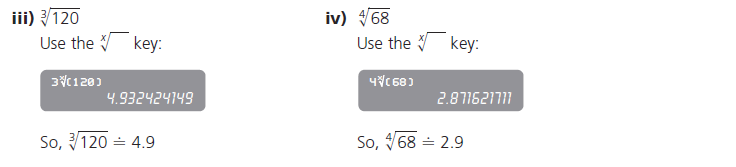
*Do Qn's p.221 #9&11*

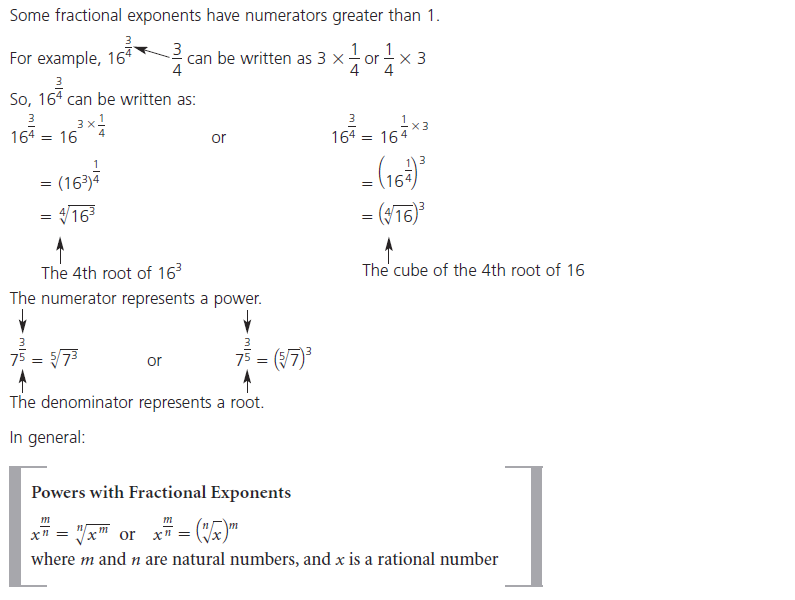
**4.4 Fractional (Rational) Exponents and Radicals –** Roots can be written as Radicals and vice versa.



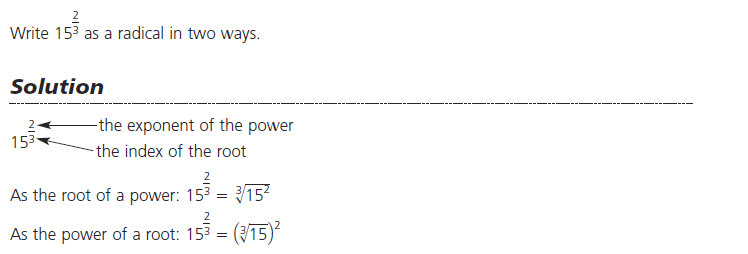
**Ex.1**





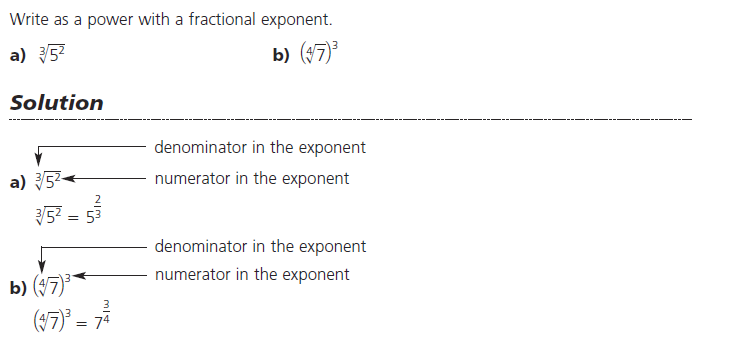


Writing Fractional Exponents as Radicals

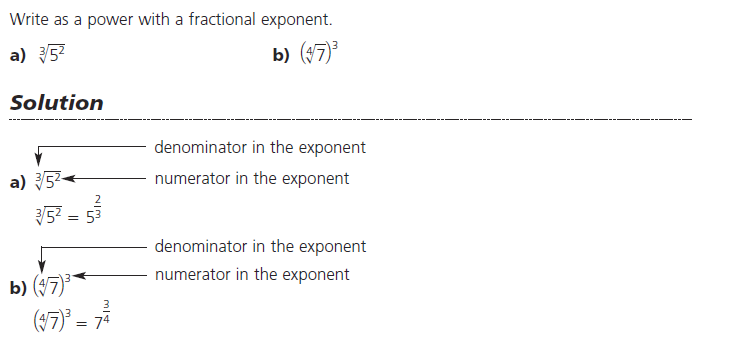


**\*Preferred Method\***

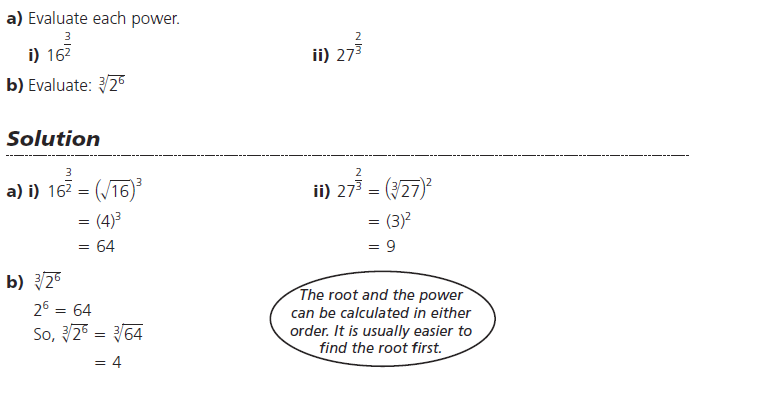
Writing Radicals as Exponents



**Ex.2**

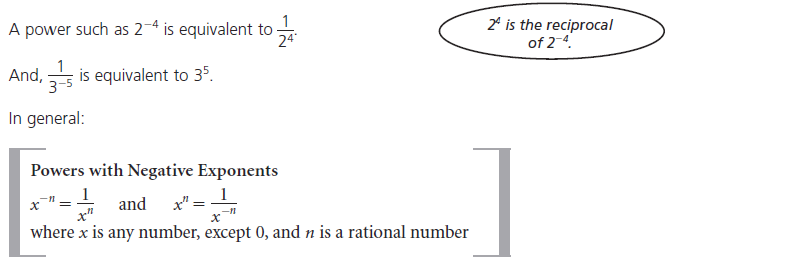


**Ex.3** Evaluating Radicals and Powers (without a calculator)

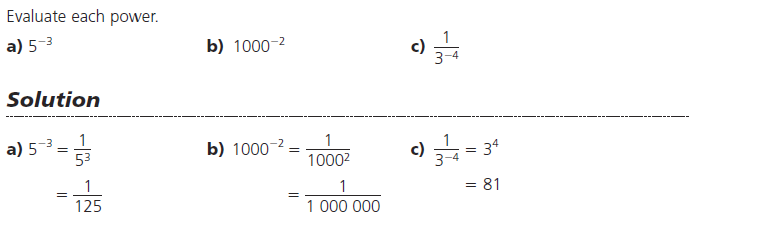


*Do Qn's p.236 #1-3*

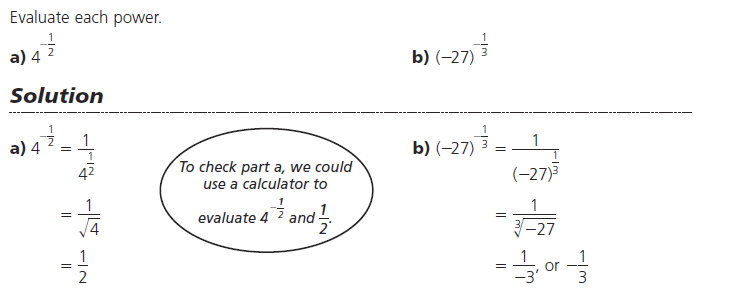
**4.5 Negative Exponents and Reciprocals**



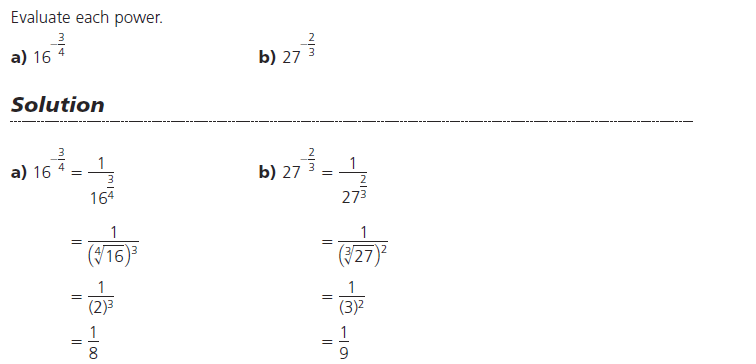
**Ex.1** Evaluating Exponents with Negative Integers

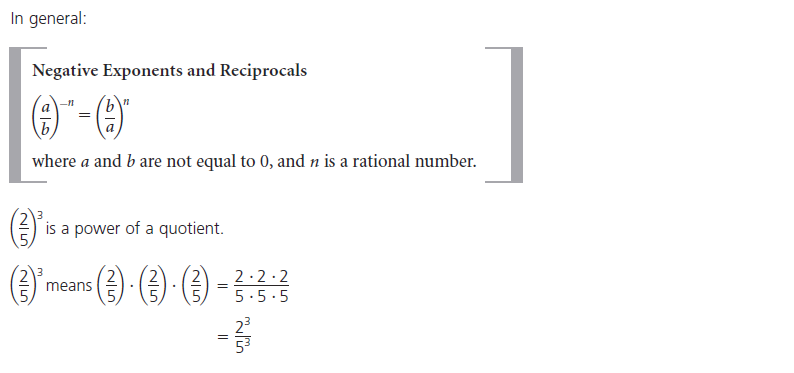


**Ex.2** Evaluating Exponents with Negative Fractional (Rational) Exponents

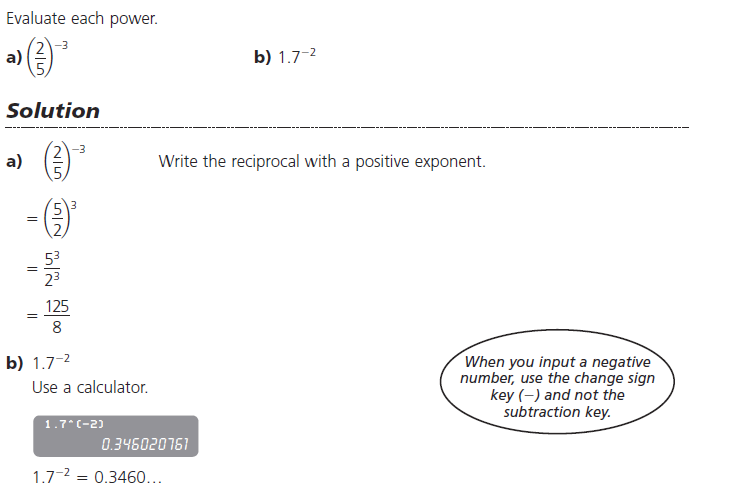


**Ex.3**





**Ex.4**

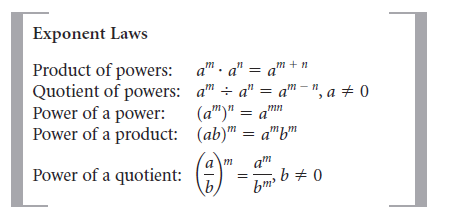


Or

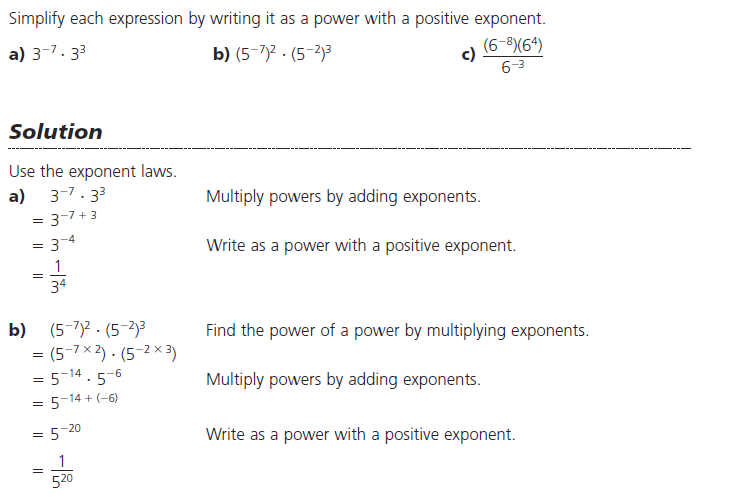
*Do Qn's p.236 #7&8*

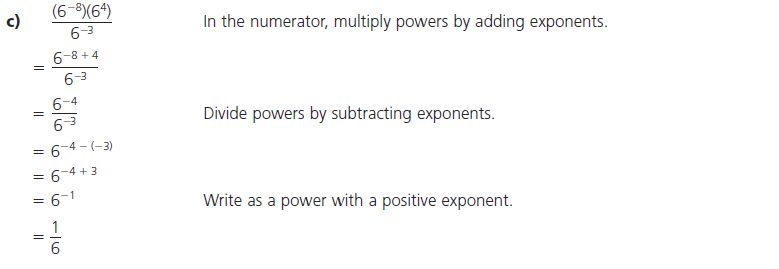
**4.6 Applying the Exponent Laws**

Prior Knowledge

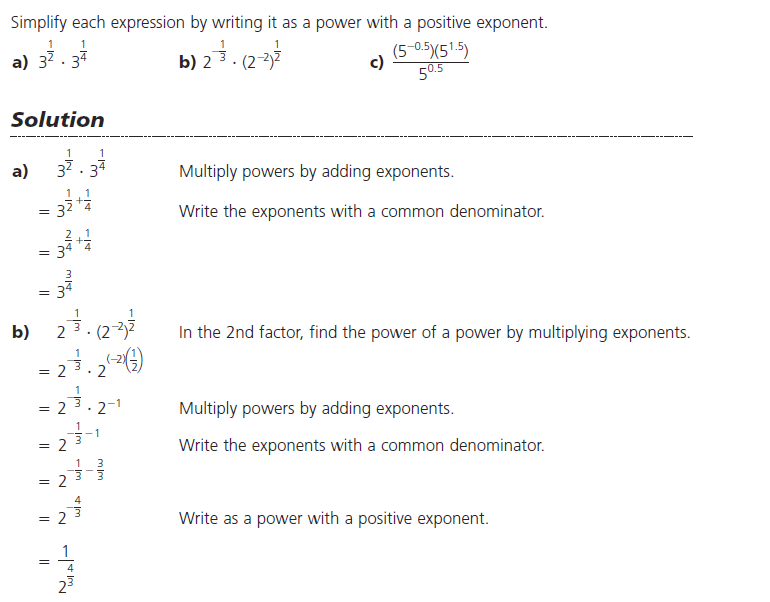


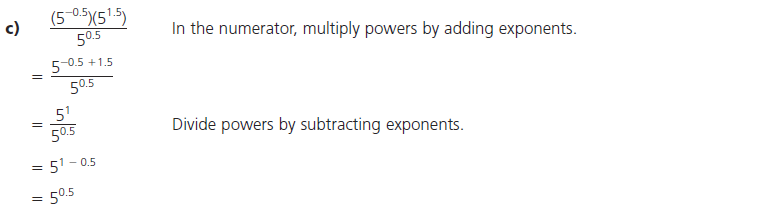
**Ex.1**





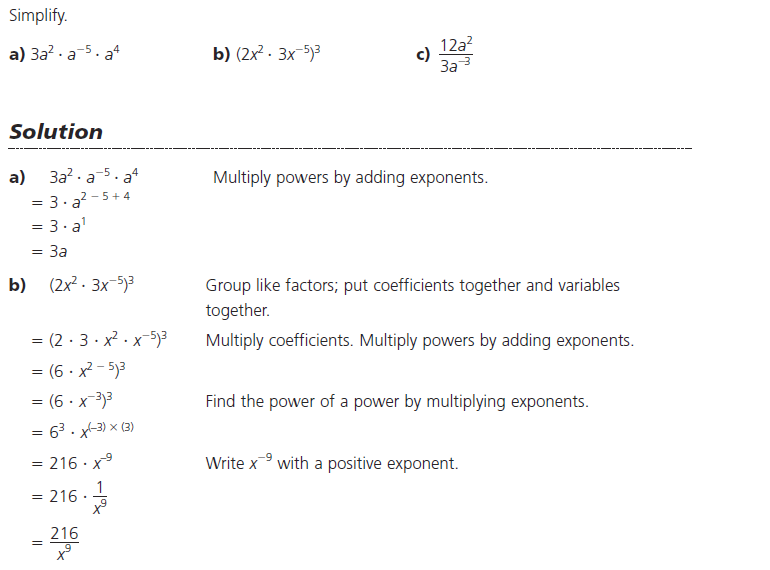
**Ex.2**

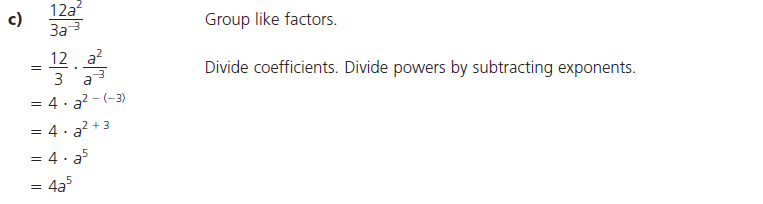




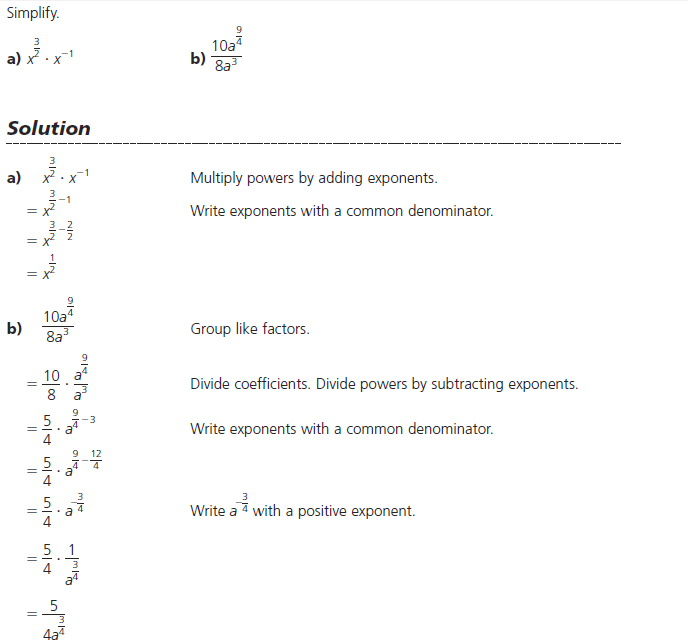
Or

**Ex.3**





**Ex.4**



*Do Qn's p.249 #6&7*

**Chp 4 Study Guide**

