Name: _____ Date: _____

Learning Goal 5.1	Express an entire radical as a simplified mixed radical and vice versa. Identify and order irrational numbers.

Example Order these numbers least to greatest.

$$4\sqrt{13},\quad 8\sqrt{3},\quad 14,\quad \sqrt{202},\quad 10\sqrt{2}$$

Example Order these numbers least to greatest.

$$\sqrt[3]{2},\quad 8\sqrt{2},\quad 2,\quad \sqrt[4]{20},\quad \sqrt[5]{20}$$

Recall like terms in algebra:

$5a + 4c + 3a - 9c + 2b$

Extend to radicals:

$\sqrt{27} + \sqrt{3}$

Example Simplify radicals and combine like terms.

a. $-\sqrt{27} + 3\sqrt{5} - \sqrt{80} - 2\sqrt{12}$

b. $\sqrt{4c} - 4\sqrt{9c}, \quad c \geq 0$

Example The speed, v, in kilometres per hour, of a car before a collision can be approximated from the length, d, in metres, of the skid mark left by the tire. On a dry day, one formula that approximates this speed is

$$v = \sqrt{169d}, \quad d \geq 0$$

a. Rewrite the formula as a mixed radical.

b. What is the approximate speed of a car if the skid mark measures 13.4 m? Express your answer to the nearest kilometre per hour.