Name: ________________________________ Points: ______

1. Perform the indicated operation.

a. $3\sqrt{98x^2}+5x\sqrt{18}-6\sqrt{4}$

b. $\left(3\sqrt{6}\right)\left(-2\sqrt{6}\right)$

c. $\dfrac{11}{4\sqrt{3}-2}$

d. $\dfrac{1-\sqrt{3}}{3\sqrt{7}+\sqrt{2}}$

2. Solve the equations containing radicals.

a. $\sqrt{2x+3}=x$

The Origin of the Radical Sign $\sqrt{}$

Before the turn of the 13th century, the root of a number was not symbolized but simply written out using a translation of the word "root" or "side." The word *Radix,* meaning "scale" in Latin, was used in medieval times (the 13th century) in Europe to signify dispensers of medicinal compounds; *Radix* was abbreviated as R_x or ℞, a sign we use today for prescriptions.

The radical sign used in mathematics today was introduced in 1525 by Christoff Rudolf, who was born in Silesia, an area that is now in Poland. He studied at the University of Vienna, and wrote a book on Algebra, entitled *Die Coss*, using German, a language considered "vulgar" because it was spoken by Germanic people. At this time, all "learned" books were written in Latin, considered the language of learning (Eves, 1990).

The radical sign resembles the small *r* for radix (Smith, 1958). French, British, and Italian mathematicians did not immediately accept the symbol. However, the publication of Rene Descartes' book, *La Geometrie*, in 1637, used Rudolf's symbol for root. Descartes' influence helped standardize $\sqrt{}$ in the mathematical world.

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b. $\sqrt{4x-2}=\sqrt{3x+7}$

c. Solve $5+\sqrt{3x-11}=x$

d. Solve $\sqrt{2x+6}-\sqrt{x+4}=1$

References

Smith, D.E. (1958). *History of mathematics*. Vol. 2. Toronto, Canada: General Publishing Company.

Eves, H.W. (1990). *An Introduction to the history of mathematics with cultural connections,* Sixth Edition. Philadelphia, PA: Saunders College Publishing.

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