Lesson #3 C: Using Order of Operations to Simplify Algebraic Expressions and Combining Like Terms-Review (Reference: Lesson #4, #7, #9 & #16 in book)

Problem

1. **Simplify and Evaluate the Algebraic Expressions given the values of the specific variables.**

    1. $x^2 - 2y^2$ when $x = 5$ and $y = 3$.

    2. $\dfrac{9x - 8y}{2x - y}$ When $x = 5$ and $y = 3$.

    3. $\dfrac{2x + 4y - 6}{5y + 2}$ when $x = 2$ and $y = 1$.

    4. $(yx)(zyx)$ when $x = 2$, $y = -1$ and $z = 4$.

    5. $\dfrac{xy(7x)}{x^2 y}$ when $x = -1$, $y = 3$ and $z = 2$.

    6. $\dfrac{-b(a - 4) + b}{b}$ when $a = -2$ and $b = 25$.

7. **Evaluate and Compare the Algebraic Expressions with the given values for the specific variables and use $<, >$, or $=$ to create a true numeric expression.**

    7. $xy\left[-y(-y)\right] \;\bigcirc\; x(x - y)$ when $x = 2$ and $y = -1$.

    8. $\left(\dfrac{x-3}{y}\right)^2 \;\bigcirc\; 3\left(\dfrac{x}{3-y}\right)^2$ when $x = 4$ and $y = -1$.

9. **Simplify each of the following Algebraic Expressions by combining like terms when possible.**

    9. $-3n - (-10n) + 8n$

10. $2xy + 4x^2 z + 3xy - 5x^2 z$

11. $x^2 y - 3yx + 2yx^2 - 2xy + yx$

12. $5xyz^3 - 3x^3 z^2 - 4xy + 3x^3 z^2 + 3xy - 2xyz^3$

13. $-4a^2c + 8bc^3 + 4a^2c^2 - bc^3 + 3a^2c$

14. $18rst - 13r^3st^2 + r^4s^3 + 8r^3st^2 - 20rst - 4r^4s^3 + rst - 9$