Practice Problem Set

ANSWER KEY

Simplify each expression. All answers should be written in standard form.

1. $4(2x-6)^2$

$4(2x-6)(2x-6)$

$4[(2x-6)(2x-6)]$

$4(4x^2-12x-12x+36)$

$4(4x^2-24x+36)$

$16x^2-96x+144$

PEMDAS – evaluate **exponent** then **multiply**

1) Rewrite $(2x-6)^2$ as $(2x-6)(2x-6)$
2) Multiply $2x-6$ by $2x-6$ and keep the product in ( )
3) Multiply the product $4x^2-24x+36$ by 4
4) Distribute 4 to each term

2. $-5(x-2)+7x(x^2-9x+1)$

$-5(x-2)+7x(x^2-9x+1)$

$-5x+10+7x^3-63x^2+7x$

$7x^3-63x^2+2x+10$

PEMDAS – **multiply** then **add** terms (combine like terms)

1) Distribute -5 and 7x to each term inside ( )
2) Add terms (combine like terms)

3. $(4x-5)(4x+5)-(2x-10)(2x+10)$

$[(4x-5)(4x+5)]-[(2x-10)(2x+10)]$

$(16x^2+20x-20x-25)-(4x^2+20x-20x-100)$

$(16x^2-25)-1(4x^2-100)$

$16x^2-25-4x^2+100$

$16x^2-25-4x^2+100$

$12x^2+75$

PEMDAS – **multiply** then **subtract** the products

3) Multiply $4x-5$ by $4x+5$ and keep product in ( )
4) Multiply $2x-10$ by $2x+10$ and keep product in ( )
5) Subtract products
6) Distribute the **–** sign or **-1**
7) Combine like terms

4. If the difference of $3x - 5$ and $7x^2 - 5x + 4$ is multiplied by $2x^2$, what is the result?

1st: Find the difference of $3x - 5$ and $7x^2 - 5x + 4$ first.

$(3x - 5) - (7x^2 - 5x + 4)$

$(3x - 5) - 1(7x^2 - 5x + 4)$ Subtract by distributing a **–** sign or **-1**

$3x - 5 - 7x^2 + 5x - 4$

$3x - 5 - 7x^2 + 5x - 4$ Combine like terms

$-7x^2 + 8x - 9$

2nd: Multiply the sum $(-7x^2 + 8x - 9)$ by $2x^2$

$2x^2(-7x^2 + 8x - 9)$ Distribute the monomial $2x^2$ to each term in the ( )

$-14x^4 + 16x^3 - 18x^2$