

Pre-Algebra

Operations with Polynomials

Do Now:

A. Write $3x + 6 - 4x^2$ in standard form. $-4x^2 + 3x + 6$

B. What is the degree of $4x - 3x^3$? 3

C. True/False: $(3x - 4)^2 = 9x^2 + 16$ False

D. Name the leading coefficient in the polynomial $3x - x^2 + 5$. -1
 $-x^2 + 3x + 5$



Remember: The order of Operations (PEMDAS) is always in effect!

Perform the indicated operations. All responses should be represented as a simplified polynomial expression in standard form.

1. $(4x - 5) + 2(3x^2 + 5x - 4)$
 $4x - 5 + 6x^2 + 10x - 8$
 $6x^2 + 14x - 13$

2. $(3x)(-4x) - (5x^2 - 3x + 1)$
 $-12x^2 - 5x^2 + 3x - 1$
 $-17x^2 + 3x - 1$

3. $(x - 2)^2 + (7x^2 + 11)$
 $(x - 2)(x - 2) + (7x^2 + 11)$
 $x^2 - 4x + 4 + 7x^2 + 11$
 $8x^2 - 4x + 15$

4. $(4x + 5)(4x - 5) + (2x - 10)(2x + 10)$
 $(16x^2 - 25) + (4x^2 - 100)$
 $20x^2 + 75$

5. $4x(2x - 6)^2$
 $4x(2x - 6)(2x - 6)$
 $4x(4x^2 - 24x + 36)$
 $16x^3 - 96x^2 + 144x$

6. $\frac{(8x^3)(-2x^5)}{4x}$
 $\frac{-16x^8}{4x}$
 $-4x^7$

7. $\frac{(2x-4)\overset{(6x)}{\cancel{(x+5)}}}{2x}$ ~~$\frac{(2x-4)(x+5)}{2x}$~~

$$\frac{12x^2 - 24x}{2x}$$

$$\boxed{6x - 12} \quad \leftarrow 6x - 12$$

~~9. $(2x-3)(x^2-3x-5)$~~

8. $(2x-1)(3x+5) - (x+5)(x-6)$

$$6x^2 + 10x - 3x - 5$$

$$x^2 - 6x + 5x - 30$$

$$(6x^2 + 7x - 5) - (x^2 - 1x - 30)$$

$$6x^2 + 7x - 5 - x^2 + 1x + 30$$

$$\boxed{5x^2 + 8x + 25}$$

10. Write a polynomial expression in simplest form for the area of a triangle whose height is $6x + 2$ and whose base is $3x - 1$.

11. Represent the product of three consecutive odd integers as a simplified polynomial expression in standard form.