

6

Lesson 6: MULTIPLYING POLYNOMIALS

Do Now:
Simplify:

a) $(2x^2 - 4) + (x^2 + 3x - 3)$

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

Review
standard
form
degree?

b) $(9b^2 + 4b) - (b - 8)$
 $9b^2 + 4b - b + 8$

$$9b^2 + 3b + 8$$

c) $x^2 \cdot x^3$ x^5

1) $m^1 \cdot m^8$ m^9

2) $2^4 \cdot 2^5$ 2^9

3) $7b^2 \cdot b^5$ $7b^7$

4) $(5x)(6xy)$ $30x^2y$

5) $-2x^2 \cdot 5x^4$ $-10x^8$

RULES:

- ❖ Multiply coefficients
- ❖ Multiply like variables (keep the base, add exponents)

6) $(x^2)^3$ x^6

7) $(y^4)^{10}$ y^{40}

8) $(5x^4)^2$
 $25x^8$

9) $(-2x^3)^5$ $-32x^{15}$

POWER RULE:

- ❖ **Raise coefficient to the outside power**
- ❖ **Keep the base, and multiply exponents.**

$$10) \overbrace{3(6c+3d)}^{18c+9d} \\ 3 \begin{array}{|c|c|} \hline 18c & +9d \\ \hline \end{array}$$

$$11) -5m(4m-6n)$$

$$\boxed{-20m^2 + 30mn}$$

$$-5m \begin{array}{|c|c|} \hline +4m & -6n \\ \hline -20m^2 & +30mn \\ \hline \end{array}$$

$$12) 5r^2s^2(-2r^2 + 3rs)$$

$$\boxed{-10r^4s^2 + 15r^3s^3}$$

Distributive property

$$a(b + c) = a(b) + a(c)$$

13) Rewrite $5x + 2x$ another way:

$$x(5+2)$$

$$x(7)$$

$$7x$$

14) What is the area of a rectangle whose length is represented by $6x - 2$ and whose width is represented by $3x$?

$$A = L \cdot W$$

$$+3x \begin{array}{|c|c|} \hline +6x & -2 \\ \hline 18x^2 & -6x \\ \hline \end{array}$$

$$\boxed{18x^2 - 6x}$$

$$15) 3(b^3 + 8b) - 2(b^3 + 12)$$

$$3b^3 + 24b - 2b^3 - 24$$

$$\boxed{b^3 + 24b - 24}$$