Algebra 2 w/ Trig

2.3 Add, Subtract and Multiply Polynomials

Warm- Up:

**Simplify the expression.**

**1.** (*–*3*x*3)(5*x*) **2.** 9*x* *–* 18*x* ***3.*** *10y2 + 7y – 8y2 – 1***4.** 4(*–* 5*a +* 6) *–*2(*a –* 8)

**5. Each side of a square is** (2*x* + 5) **inches long. Write an expression for the perimeter of the square.**

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Example 1: Add Polynomials Vertically and Horizontally

**a. Add** 2*x*3 – 5*x*2 + 3*x* – 9 **and** *x*3 + 6*x*2 + 11

**b. Add** 3*y*3 – 2*y*2 – 7*y* **and**

 – 4*y*2 + 2*y* – 5 **in a horizontal format.**

 **in a vertical format.**

Example 2: Subtract Polynomials Vertically and Horizontally

**a. Subtract** 3*x*3 + 2*x*2 – *x* + 7 **from**

**b. Subtract** 5*z*2 – *z* + 3 **from**

4*z*2 + 9*z* – 12 **in a horizontal format.**

8*x*3 – *x*2 – 5*x* + 1 **in a vertical format.**

YOU TRY:

**Find the sum or difference.**

**1.** (*t*2 – 6*t* + 2) + (5*t*2 – *t* – 8) **2.** (8*d* – 3 + 9*d*3) – (*d*3 – 13*d*2 – 4)

Example 3: Multiply Polynomials Vertically and Horizontally

**b. Multiply** *x* + 3 **and** 3*x*2 – 2*x* + 4 **in a horizontal format.**

**a. Multiply** – 2*y*2 + 3*y* – 6 **and** *y* – 2 **in a**

**vertical format.**

Example 4: Multiply Three Binomials

**Multiply** *x* – 5, *x* + 1**, and** *x* + 3 **in a horizontal format.**

Example 5: Use Special Product Patterns

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**a.** (3*t* + 4)(3*t* – 4) **b.** (8*x* – 3)2 **c.** (*pq* + 5)3

YOU TRY:

**Find the product.**

**3.** (*x* + 2)(3*x*2 – *x* – 5) **4.** (*a* – 5)(*a* + 2)(*a* + 6) **5.** (*xy* – 4)3

Example 6: Using Polynomial Models

**Since** 1980**, the number** *W***(in thousands) of United States wells producing crude oil and the average daily oil output per well** *O***(in barrels) can be modeled by**

*W* = – 0.575*t*2 + 10.9*t* + 548 **and** *O* = – 0.249*t* + 15.4

**where** *t***is the number of years since** 1980**. Write a model for the average total amount** *T***of crude oil produced per day. What was the average total amount of crude oil produced per day in** 2000**?**

YOU TRY:

**The models below give the average depth** *D***(in feet) of new wells drilled and the average cost per foot** *C***(in dollars) of drilling a new well. In both models,** *t***represents the number of years since** 1980**. Write a model for the average *total* cost** *T* **of drilling a new well.**

*D* = 109*t* + 4010 *C* = 0.542*t*2 – 7.16*t* + 79.4

KEEP GOING:

Hw: Section 2.3 p. 107 #3-47 odd

**Find the sum, difference, or product.**

1. (3*x*2 + 5*x* + 2) + (*x*2 – 3*x* + 6) 2. (5*p*3 + 2*p*2 – 3*p* – 7) - (2*p*3 – 4*p*2 – 5*p +* 6)

3. (5*a*2 + 6*a* + 9)(2*a* – 3) 4. 6(*x –* 1)(*x* + 1)

