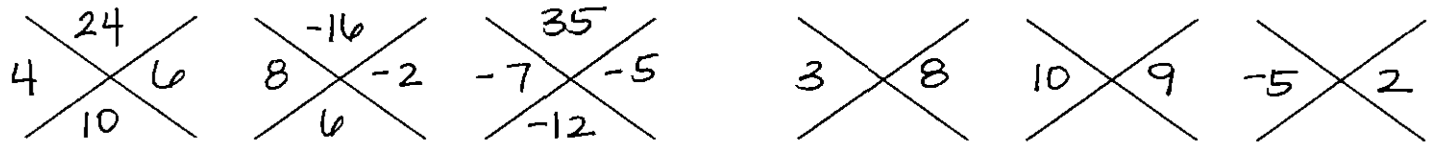
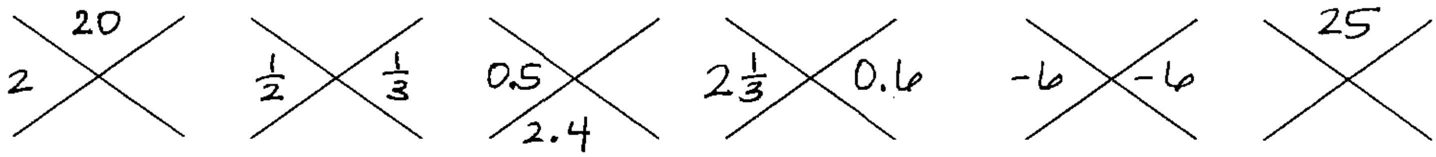
Developmental Math Workshop
Friday, August 27, 2010
Best Practices ~ Autumn Alden

Pattern recognition. Look at the examples, try to discern the pattern, and fill in the missing numbers.



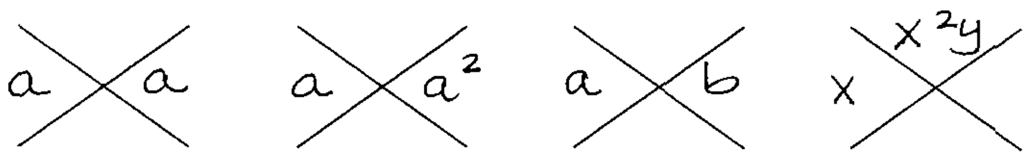
These are good for practice with arithmetic of course. Depending on which numbers are missing, these can be used for addition, subtraction, multiplication, or division. Having the side numbers the same, or requiring them to be the same, can teach squares and square roots.



This can lead to conversations about sign rules. When the top number is positive, the sides must be the same sign. If the top number is negative, there must be one positive and one negative number. If the side numbers are negative, the top will be positive, but for the bottom, you need more information.

It can also lead to interesting conversations about 0.

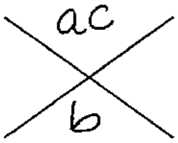
They can also be used with algebraic expressions, to emphasize the difference between like and unlike terms and also for exponent rules.



And one of the most useful applications of diamond problems is for factoring by splitting the middle terms.
$ax^2 + bx + c$

Ex. $x^2 - 8x + 15$

Ex. $2x^2 + 11x + 9$



And if you teach the area model for multiplying polynomials, the idea can be used in reverse for factoring that is less algebra-intensive. The process, of course, is entirely the same.

Ex. $x^2 + 2x - 15$

Ex. $2x^2 + 3x - 9$

And a few additional steps, the idea can be used for solving quadratic equations.

Ex. $4x^2 - 15x + 6 = x^2 + 4x$

Questions?