## Math 5: Handout 14 Difference of Squares. Review.

## **Difference** of Squares

Not much new material today — mostly repeated stuff we had covered before. We did, however, cover one new and important formula:

$$a^2 - b^2 = (a - b)(a + b)$$

## Homework

- o. Please finish the classwork problems from Handout 13.
- 1. Solve the following equation: 3 5(2 x) = 18
- Do the operations with binary numbers: 101101 + 110100 11011101 - 10010
- 3. If  $a = 3 \times 10^{-7}$ ,  $b = 5 \times 10^{-5}$ , what is  $a^2$ ? 1/b?  $a^2 \div b^3$ ?
- 4. Factor the following number into primes:  $99^2 9^2$ . [Hint: you do not have to compute this number.]
- 5. Can you find whole numbers *a*, *b* such that  $a^2 b^2 = 17$ ? [Hint: use the formula we talked about in class, and think what a b and a + b must be.]
- 6. For the following problem, you need to know that the speed of light is about 300,000 km/sec, and one year is about  $3 \cdot 10^7$  seconds.
  - a. How long would it take light to travel from Sun to Earth? The distance is about  $1.5 \cdot 10^8$  km
  - b. In astronomy, a common unit of distance is a light year: the distance light covers in one year. How many kilometers is it?
  - c. Another common unit of distance in astronomy is a parsec, which is approximately equal to 3 × 10<sup>13</sup> km. Can you compute how many parsecs are there in one light year? How many parsecs between Earth and Sun? between Earth and the Andromeda Nebula (≈ 2,000,000,000,000,000,000,000 km)?
- 7. Solve (different letters stand for different digits):

	FORTY
+	TEN
+	TEN
	SIXTY

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