MATH 8: HANDOUT 1
REVIEW I

1. Open parentheses and expand the following expressions
   (a) $(a+b)^2 =$
   (b) $(a-b)^3 =$
2. Factor the following expressions:
   (a) $a^2 - b^2 =$
   (b) $a^3 - b^3 =$
   (c) $a^3 + b^3 =$
3. Expand as sums of powers of x:

$$(2x+1)^2(2-3x)$$

4. A group of 19 people want to select a chairperson and two associates. How many ways there are for them to do so?
5. Solve the equation

$$x + \frac{1}{x} = 4.25$$

6. Consider the following quadratic equation:

$$x^2 - 5x - 14 = 0$$

   (a) What is the discriminant of this equation?
   (b) Sketch a graph of this quadratic polynomial
   (c) Solve the equation.
7. Let $x + y = 7$ and $xy = 8$
   (a) Write down the quadratic equation so that x and y are its solutions.
   (b) Calculate $x^2 + y^2$.