# MATH 34A REVIEW ON ALGEBRA

**I. Solving equations with one unknown.**

1. Solve for $x$.
$$(3x + 2)^{-1} = (x - 1)^{-1}$$

2. Solve for $x$.
$$(2x - 1)(4x + 1) = (x + 3)(4x - 1)$$

3. Solve for $x$ in terms of $a$ and $b$.
$$ax + 7 = 3x + 5 + 2b$$

**II. Solving system of equations with two unknowns.**

1. Solve for $x$ and $y$ using the method of substitution.

$$
\begin{aligned}
3x - y &= 13 \\
x + y &= 7
\end{aligned}
$$

2. Solve for $x$ and $y$ using the method of elimination.

$$5x - 3y = 4$$
$$4x - 2y = 1$$

3. Solve for $x$ and $y$ in terms of $a$ and $b$.

$$3x + 2y = 3a$$
$$x + y = 2a - b$$

## III. Percentage and fractions.

1. What is $\frac{2}{3}$ of 27?

2. What is 55% of 140?

3. What is 75% of $\frac{3}{5}$ of 60?

4. Suppose that Can A has 2 liters of paint which is half yellow and half blue. Suppose that Can B has 3 liters of paint which is 20% yellow and 80% blue. If we mix the two cans together, how much yellow paint will we get in the mixture?

## IV. Unit conversions.

1. Convert 150g/L to mg/m³. (1g= 1000g, 1L= 1000m³)

2. A car is traveling a at speed of 65miles/hour. What is it in km/min? (1miles= 1.6km).

3. If it takes John 45min to read 10 pages of a book, how many pages can he read in 1 hour? How many pages can he read in 2 hours? How many pages can he read in 3.5 hours?