

Instructions: Complete these problems for homework due on the 5th night of class. These should look very similar to those that were covered during our class meeting covering §3.5 through 4.3.

1. Do the following tables of values represent a linear equation? Show the reason how you know this?

a)

a	D
2	-1
4	-3
8	-7
12	-11

b)

o	Z
1	-19
5	-14
13	-3
22	9

2. In 2010 the unemployment rate was 12.5%. In 2014 the unemployment rate had dropped to 7%. Find the average rate of change in % unemployment per year.

3. For the following scenario give a **linear equation** and a **t-table** that gives 3 *ordered pairs* that satisfy the story & linear equation.

The percentage of students receiving an A-average in High School, P, was 15 percent in 1970. This percentage has increased approximately linearly at a rate of $\frac{5}{6}\%$ every year since 1970, t.

- Give the dependent variable (as a variable based on the story above).
- Give the independent variable (as a variable based on the story above).
- What is the baseline (start value); the y-intercept?
- What is the rate of change? Give the rate of change with units.
- Give the linear equation for this situation.
- Give a t-table of 3 values for the model that you gave that satisfy the scenario.

independent	dependent

4. Simplify the following expression. Show and name each property of the real numbers used to simplify the expression.

$$2(x + 3) + 3x + 5$$

5. Simplify the following expressions.

a) $\frac{5}{6}(x - \frac{1}{3}) + \frac{2}{3}$

b) $-\frac{5}{7}(-21x)$

c) $9 - 3(2x - 4)$

d) $3x + 3(4x + 2) - 7$

6. Check your answer to 5c) by evaluating the original and simplified forms at $x = 0$. This exhibits the definition for *equivalent expressions* on p. 181 (Lehmann Ed. 1).

7. Solve the following linear equations in one variable. Give your answer as $x = \#$. Show all work.

a) $-207 = 4x - 3$

b) $187 - x - 5x = 2 - x$

c) $7(x + 6) + 4x = 3(4x - 7) + 5$

d) $\frac{3}{5}x - 5 = \frac{1}{2}x + 2$

8. Check the solution to 7b). Show that the original expressions yield an equivalence.