Name:_____   Date:_____

Notes
Algebra Section 5.1-5.2
Pages 283-289

Goal: "You will write equations of lines"

Slope – intercept form:

```
┌─────────────────────────────────────┐
│                                     │
│                                     │
│                                     │
│                                     │
└─────────────────────────────────────┘
```

Situation 1: Write the equation of a line in slope – intercept form if given slope and the y – intercept

Ex: **Ex:**   **Ex:**
  Slope: –2   Slope: 8   Slope: 4
  y – intercept: 5 y – intercept: –7 y – intercept: –3

Ex: **Ex:**   **Ex:**
  Slope: $\frac{3}{4}$ Slope: 0   Slope: –1
  y – intercept: –3 y – intercept: 5 y – intercept: 0

Situation 1: Write the equation of a line in slope – intercept form given the slope and one point:
1. Plug in _____, _____, and _____   **Ex:** slope: –4, passes through (–1, 3)

2. Solve for _____

3. Plug in _____ and _____

Try These:

Write the equation of the line with the given slope that passes through the given point.
Ex: (6, 3), slope = 2   **Ex:** (6, 3) slope: –2

Situation 2: Write the equation of the line in slope – intercept form that passes through the given points:

1. Find the _____   **Ex:** (–2, 5) (2, –1)

2. Plug in _____ and one _____ (*x* and *y*)

3. Solve for _____

4. Plug in _____ and _____

Try These:

Write the equation of the line in slope – intercept form that passes through the given points:
Ex: (3, 0) (2, –4)   **Ex:** (1, –2) (5, 4)

Real – world connection: $y = mx + b$ *In the real world, $m = $ _____ rate of _____
                                                                         and $b = $ _____ value.

Ex: A recording studio charges musicians an initial fee of $50 to record an album. Studio time costs an additional $35 per hour.
   a)   Write an equation that gives the total cost to record an album as a function of studio time needed.

   b) Find the total cost to make an album that takes 10 hours to record.

Ex: A dance studio charges $20 to use the facility and $25 per hour of instruction.
   a)   Write an equation that gives the total cost as a function of hours of dance instruction.

   b) Find the total cost for 2 hours of dance instruction.

Try These:

1. Your gym membership costs $33 per month after an initial membership fee. You paid a total of $228 after 6 months. Write an equation for the total cost as a function of the number attended. Then find the total cost for 9 months.

2. In BMX racing, racers purchase a one-year membership to a track. They also pay an entry fee for each race at that track. One racer paid a total of $125 for 5 races. A second racer paid a total of $170 for 8 races. How much does each race cost? How much does the membership fee cost? Write an equation to find the total cost for any number of races.

3. For science class you need to know the Celsius equivalent of a room temperature of 70° Fahrenheit. To estimate, you use the facts that 32° Fahrenheit is equivalent to °0C and that 212°F is equivalent to 100°C. Write an equation to represent degrees Celsius, C, based on degrees Fahrenheit, F.