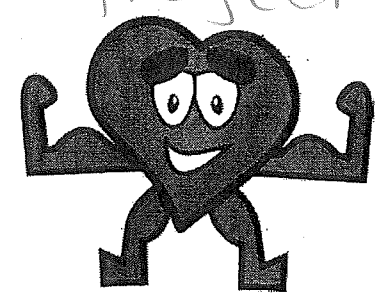# Weight Watchers

Diet and Exercise are words often paired together and for good reason. Depending on weight related goals, these are the variables that pull the strings. While infomercials will break down the value of different types of calories, most experts agree — **a calorie is a calorie**. A calorie from a piece of broccoli is effectively the same as one from a candy bar. The energy burns the same. Of course there are other nutritional benefits to the broccoli, but when it comes down to barebones weight and energy they are pretty much the same.
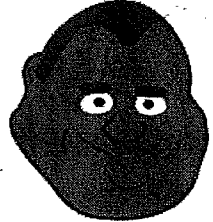
A good rule of thumb, **3,500 calories is equal to a pound**. Thus if you burn 3,500 more calories than you eat, you lose a pound. If you don't use 3,500 calories that you ate, you gain a pound.

Using the data on the handout "The Burn Chart" and "The Food Chart" help the five people plan their last workout or plan their last meal to help reach their goals.

[Weight Loss] **Burn – Consumption ≥ Goal**   [Weight Gain] **Consumption – Burn ≥ Goal**

H.D.

H: 5'8"   W: 265

Age: 29   Moderate Activity

Weekly Goal:
Lose 3 lbs
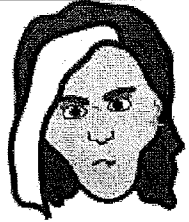
Calorie Goal Calculator

_____ * 3500 cals
lbs goal

= _____
total weekly cals
circle[gain/lose]

_____ / 7 =
total weekly cals

_____ extra per day
circle[Consume/Burn]

Totals with ONE workout to go...	
Consumed	2570
Burned	2300

H.D. has two hours to workout to meet his fitness goals for the day. Choose an activity(ies) that will help him reach his daily goal.

Trish

H: 5'3"   W: 125

Age: 23   Very Active

Weekly Goal:
Maintain Weight

Calorie Goal Calculator

_____ * 3500 cals
lbs goal

= _____
total weekly cals
circle[gain/lose]

_____ / 7 =
total weekly cals

_____ extra per day
circle[Consume/Burn]

Totals with ONE meal to go...	
Consumed	1750
Burned	2290

Home from working out, Trish is ready for her last meal of the day. She'd like some kind of meat, fruit, and couple of vegetables. Choose carefully and try to meet her goals.

Sydney

H: 5'2" W: 108

Age: 31 Moderate Activity

Weekly Goal:
Gain 2 lbs

Calorie Goal Calculator

_____ * 3500 cals
lbs goal

=

_____
total weekly cals
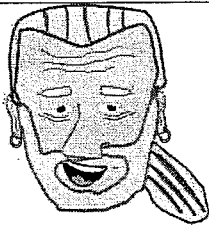circle(**gain/lose**)

_____ / 7 =
total weekly cals

_____ **extra per day**
circle(**Consume/Burn**)

Totals with ONE meal to go...	
Consumed	1440
Burned	1620

Sydney is trying to add a little muscle and is eating one last meal for the day. Figure out a combination that will meet her goal.

Shabazz

H: 6'4" W: 215

Age: 65 Extremely Active

Weekly Goal:
Lose 2 lbs

Calorie Goal Calculator

_____ * 3500 cals
lbs goal

=

_____
total weekly cals
circle(**gain/lose**)

_____ / 7 =
total weekly cals

_____ **extra per day**
circle(**Consume/Burn**)

Totals with ONE workout and ONE meal to go...	
Consumed	1910
Burned	2130

Home from work, Shabazz would like to have a sandwich. Afterward, he has three hours to spend working out. Find a combination that meets his goals.

Tripiti

H: 5'9" W: 155

Age: 34 Moderate Activity

Weekly Goal:
Maintain Weight

Calorie Goal Calculator

_____ * 3500 cals
lbs goal

=

_____
total weekly cals
circle(**gain/lose**)

_____ / 7 =
total weekly cals

_____ **extra per day**
circle(**Consume/Burn**)

Totals with ONE workout and ONE meal to go...	
Consumed	1750
Burned	1480

Tripiti is ready to chow on a veggie-filled pita with cheese and ice cream for dessert. She has two hours to play some kind of sport. Find a combo that works for her.

EXTENSION: Based on this activity, was finding combinations that worked difficult to do? Is this something that you could use in your daily life? Why or why not?

Let $g(x) = 2x - 3$ and $h(x) = x^2 + x - 1$

Find the following values:

1) g(-4)

2) h(2)

3) h(-1)

4) g(5)

5) g(5) − h(-1)

6) h(3) + g(-4)

7) g(2) − g(-5)

STOP AND ASK TEACHER FOR INSTRUCTIONS

8) g(h(1))

9) g(g(4))

10) h(g(-3))

11) g(m)

12) h(z)

13) g(x+1)

$$f(x) = x^2 - 3x$$

What is the value of $f(5)$?

A 4

B 8

C 10

D 16

$$f(x) = -3x + 1$$

What is $f(3)$?

A -10

B -8

C 8

D 10

If $f(x) = 2x - 5$, which expression represents $f(x + 1)$?

A $2x - 3$

B $2x - 4$

C $2x - 5$

D $2x + 7$

Name:_____   Date:_____

- **Writing an equation of a line <u>given m and b.</u>**
- 1. <u>Write</u> down $y = mx + b$.
- 2. <u>Substitute</u> slope for m and y-intercept for b.
- 3. <u>Simplify</u> the equation.

<u>Ex. 1</u>: Slope is -5 and y-intercept is 2. **Equation:** _____

<u>Ex. 2</u>: Slope is -1/2 and y-intercept is -2. **Equation:** _____

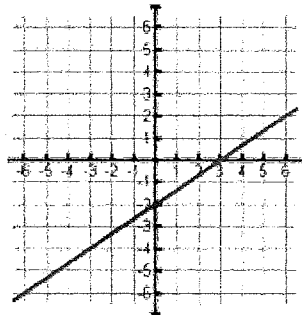<u>Ex. 3</u>: Slope is 0 and y-intercept is 3. **Equation:** _____

<u>Ex. 4</u>: Slope is 1/3 and y-intercept is 0. **Equation:** _____

- **Writing an equation of a line <u>given a graph.</u>**
- 1. <u>Write</u> down $y = mx + b$.
- 2. Use any 2 "good" points on the graph to find the slope, m.
- 3. Find the y-intercept on the graph, b.
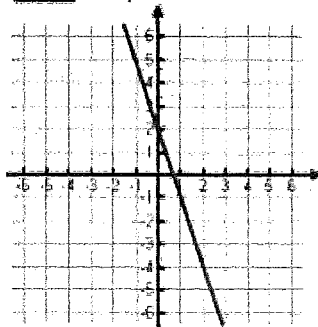- 4. Substitute slope for m and y-intercept for b into the equation $y = mx + b$.
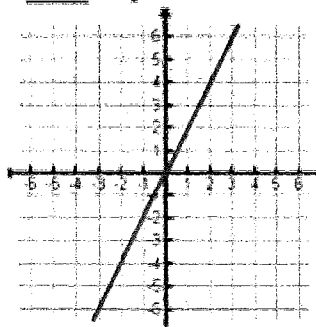
<u>Ex. 5</u>: **Equation:**
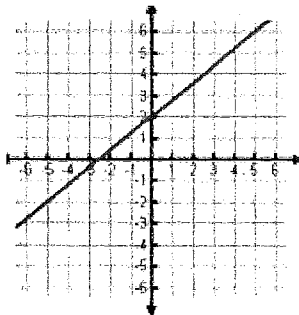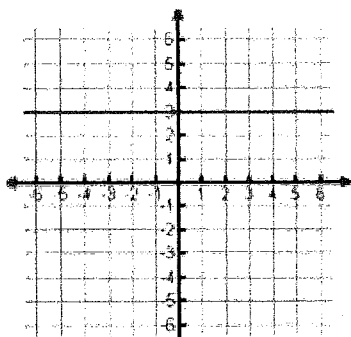

<u>Ex. 6</u>: **Equation:**
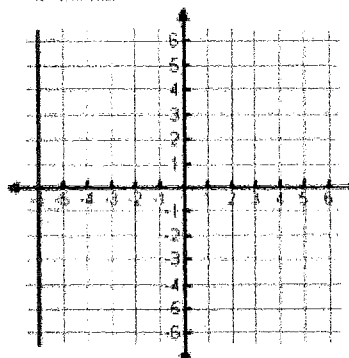

<u>Ex. 7</u>: **Equation:**
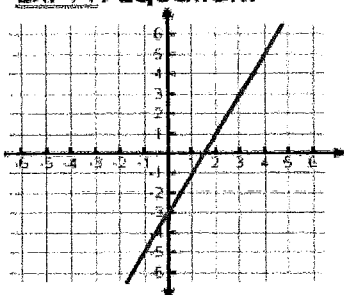

<u>Ex. 8</u>: **Equation:**
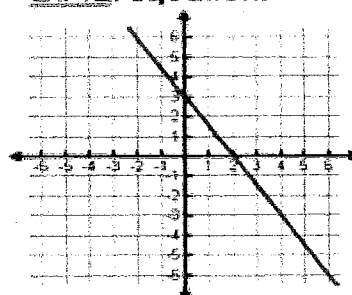
Ex. 9: Equation:

Ex. 10: Equation:

Ex. 11: Equation:

Ex. 12: Equation:

- **Writing an equation of a line given m and a point.**
- 1. Write down $y = mx + b$.
- 2. Substitute slope for m and the point (x, y).
- 3. Solve for b.
- 4. Substitute m and b back into the equation.

Ex. 13: m = 2 and Point: (2, 3)   Ex. 14: m = 1/2 and Point: (4, -3)

- Ex. 15: m = ½ and Point: (-1, -2)   *****Ex. 16: m = 2 and Point (0, 3)

Writing an equation of a line <u>given TWO points</u>.

- 1. Write down $y = mx + b$.
- 2. Use the slope formula to find m.
- 3. Pick one of the ordered pairs and substitute slope for m and the point (x, y).
- 4. Solve for b.
- 5. Substitute m and b back into the equation.

<u>Ex. 21</u>: Points: (2, 3) and (4, 5)   <u>Ex. 22</u>: Points: (2, 3) and (-4, 15)

***<u>Ex. 23</u>: Points: (2, 2) and (0, 4)   <u>Ex. 24</u>: Points: (2, 3) and (1, 4)

Directions: Help Detective Ray Radicand determine who pawned what items by graphing each linear equation below. Each line will connect the seller's initial with the item they pawned. When you're finished, you'll have discovered by the process of elimination what Mr. M., our suspect, pawned.

1. $y = -\frac{3}{2}x + 6$

2. $y = x - 8$

3. $y = \frac{1}{5}x$

4. $y = 3x - 3$

5. $y = -\frac{1}{2}x + 1$

6. $y = -\frac{2}{5}x - 3$

7. $y = \frac{1}{2}x + 2$

8. $x = -8$

9. $y = \frac{1}{3}x - 9$

10. $y = \frac{1}{4}x - 5$

11. $y = 2$

12. $y = -\frac{1}{2}x - 5$

BONUS: What is the equation of the line that connects Mr. M. to the item?

Record who pawned each item here.
Mr. A.
Mr. B.
Ms. C.
Mr. D.
Mrs. E.
Mr. F.
Mr. G
Mr. H.
Ms. I.
Ms. J.
Mrs. K.
Mr. L.
Mr. M.