# Seventh Set of Homework for Math 05

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**Please note:** You should fully justify your answers.

## Formulas

1. Solve each of the following equations for the stated variable. If you need to divide by a variable you should explicitly state that it is non-zero.

   (a) $F = ma$, for $a$.

   (b) $ax + b = 0$, for $x$.

   (c) $2x - 3y = 6$, for $y$.

   (d) $y = 3x - 5$, for $x$.

   (e) $Ax + By + C = 0$, for $y$.

   (f) $y = mx + b$, for $m$.

   (g) $s = \dfrac{1}{2}gt^2$, for $g$.

   (h) $C = \dfrac{5}{9}(F - 32)$, for $F$.

   (i) $2y = 3ax - 2x + 3$, for $x$.

   (j) $2a = \dfrac{3ax - b}{2b} - c$, for $a$.

2. Find the numbers described in parts a, d of Exercise 2 of the Fourth set of homework.

3. The width of a rectangle is three less than twice its length.

   (a) If the length of the rectangle is 7 inches how much is its width?

   (b) If the width of the rectangle is 21 inches how much is its length?

   (c) Find a formula that gives the length of the rectangle in terms of its width.

   (d) Write a formula for the perimeter $P$ of this rectangle that involves only its length $l$.

   (e) If the perimeter of the rectangle is 24 inches find its dimensions (i.e. its length and its width).

4. The temperature $C$ in degrees Celsius and the temperature $F$ in degrees Fahrenheit are related by the formula:
$$C = \frac{5(F - 32)}{9}$$

   One day the numerical value of both temperature measurements was the same. What was the temperature that day?