

## **Algebra world problem worksheet (from Math in Focus).**

### **Problem 1**

Of the people of Sunrise School, 40% are female students, 5% are staff, and the remaining people are male students. At first, there are 270 more male students than female students. Later, 50% of the staff quits and decides to become a student, adding equal numbers to female and male student populations. How much of the staff quit?

### **Problem 2**

At a Cafeteria, 25% Sandwiches for sale are chicken sandwiches. The remaining sandwiches are tuna sandwiches and turkey sandwiches. At first, the ratio of tuna sandwiches to turkey sandwiches is 5:4 and there are 152 more tuna sandwiches than chicken sandwiches. Then, 14 chicken sandwiches are sold. How many Chicken, Turkey and Tuna sandwiches are left?

### **Problem 3**

A solid gold cone has a radius of 6 inches. It is melted to form smaller gold cones. Each smaller cone has a height of 2 inches and a radius of 1 inch. How many smaller cones can be formed?

### **Problem 4**

Jennifer buys wax to make cone-shaped candles. Each candle will have a height of 8 inches and a diameter of 5 inches. If she wants to make 180 candles, how many cubic centimeters of wax does she need?

### **Problem 5**

The proportion between male and female voters is 5:3 when there are no female presidents running and 1:1 when there is a female president running. A million more females vote when a female president is running. What's the ratio between the number of male voters in both elections?

### **Problem 6: Write an algebraic expression from each of the following:**

A number is 7 times more than the product of 6 and  $p$

The total cost of 2 notebooks if 8 notebooks cost a total of  $y$  dollars

Jacob has  $m$  nails and twice as many bolts as nails. He buys another 20 nails and 30 bolts. Find the total number of nails and bolts Jacob has now

Anyia has  $2p$  trading cards. Ben has three times as many trading cards as Anyia. Colin has half as many trading cards as Ben. Find the total number of trading cards they have altogether.

Jon has  $m$  stickers. He uses 20 stickers and divides the remainder equally between his two sisters. Find the number of stickers each sister receives.

$\frac{2}{5}$  of Abel's books are equal to  $\frac{4}{7}$  of Bella's books. Bella gives  $x$  books to Abel and now the proportion between  $\frac{2}{3}$  of Abel's books and  $\frac{2}{5}$  of Bella's books is 5:4. Solve for the initial number of books in terms of  $x$ .