Accelerated math. Homework 27.

school

Problems marked with \* are more difficult.

1. Simplify the following expression:

$$\frac{(x^2y^2)\cdot x^3}{x^2y^5}$$

- 2. Let  $a = 2 \cdot 10^{8}$ ,  $b = 10^{5}$ . Compute
  - $a^2 \cdot b$  $\frac{a}{b};$  $\frac{a^2}{b^2};$
- 3. If  $a = 2^{-13} \cdot 3^9$ ,  $b = 2^{11}3^{-7}$  what is the value of *ab*? Of *a/b*?
- 4. Evaluate the following expression by the most convenient way:

$$95^2 - 5^2 =$$

5. If, in a right triangle, one leg has length 1 and the hypotenuse has length 2, what is the other leg?

## 6.

Let ABCD be a parallelogram, and let BE, CF be perpendiculars from B, C to the line AD.

- (a) Show that triangles  $\triangle ABE$  and  $\triangle DCF$  are congruent.
- (b) Show that the area of parallelogram is equal to height  $\times$  base, i.e.  $BE \times AD$ .





In the figure to the right, ABCD is a rectangle, and M is the midpoint of BC. Prove that then triangle AMD is isosceles.

8.

## Let

A=set of all people who know FrenchB=set of all people who know GermanC=set of all people who know RussianDescribe in words the following sets:

(a)  $A \cap B$  (b) $A \cup (B \cap C)$  (c)  $(A \cap B) \cup (A \cap C)$