Accelerated math. Homework 19.

Problems marked with ** are very difficult.

1. Dry cranberries contain 25% of water. How much water should be evaporated from 5 kg of fresh cranberries to get dry cranberries, if fresh cranberries contain 85% of water?
2. For what values of the variables the following expressions make sense:
   Examples:
   1. $\frac{23a}{a+2}$; $a+2 \neq 0,\ a \neq -2$
   2. $\frac{45x+b}{(x+1)(x+3)(x+4)}$; *denominator can't be equale to* 0. *It is equale to* 0, *if any of the expression in the parenthesis is* 0, *therefore*
   $x+1 \neq 0, x \neq -1,$
   $x+3 \neq 0, x \neq -3,$
   $x+4 \neq 0, x \neq -4$

   3. $x+5$; *x can be any number.*

   a. $4a^3$;
   b. $3b-8$;
   c. $\frac{12}{c-9}$;
   d. $\frac{4d-5}{2d+7}$;
   e. $\frac{3y}{(2-y)(y+5)}$;
   f. $\frac{1}{(3+x)(x-6)}$;
   g. $\frac{5m}{(3m+4)(2c+7)}$;
   h. $\frac{3(4-k)}{(k+0.5)(4-k)(d+6.3)}$;
3. Simplify the following expressions and find the values of variables, which can't be used:
   Example:
   $-m^3k \div m = \frac{-m^3k}{m} = -m^2k, \quad m \neq 0$
   a. $-x^2y \div (-y^2)$;
   b. $(-11a) \cdot (-5c) : (-22c)$;
   c. $(x+3)(x-1) - x(x+4)$;
   d. $(nm - km) : m$

4. Solve the following equations:
   a. $3(x+2)+\big(x-2(1-x)\big)+\Big(5-\big(3x-2(2-3x)\big)\Big)=-2$
   b. $5y+\big(1-(3y-5)\big)-\big((9-5y)-3\big)+3(4-2y)=9$
   c. $a-\Big(2a+2\big(a-(5-a)\big)\Big)+4-3\big(2a-(4a-9)\big)+(a-3+4a)=5$
5. Construct the isosceles triangle by angle at the base and the base. It means that the both angles at the base should be congruent to the given angle and the base should be congruent to the given segment.