Math 5a, homework 16.

1. What is bigger:

   a. $\frac{1}{2}+\frac{1}{5}$ or $\frac{1}{3}+\frac{1}{4}$;

   b. $\frac{1}{2}-\frac{1}{3}$ or $\frac{1}{4}-\frac{1}{5}$

   c. $\frac{1}{120}+\frac{1}{123}$ or $\frac{1}{121}+\frac{1}{122}$;

   d. $\frac{1}{120}-\frac{1}{121}$ or $\frac{1}{122}-\frac{1}{123}$

   e. $\frac{1}{2021}+\frac{1}{2024}$ or $\frac{1}{2022}+\frac{1}{2023}$;

   f. $\frac{1}{2021}-\frac{1}{2022}$ or $\frac{1}{2023}-\frac{1}{2024}$

   g. $\frac{1}{n}+\frac{1}{n+3}$ or $\frac{1}{n+1}+\frac{1}{n+2}$;

   h. $\frac{1}{n}-\frac{1}{n+1}$ or $\frac{1}{n+2}-\frac{1}{n+3}$

   (n is a natural number)

2. Find the measure of an angle which is congruent to twice its supplementary one.

3. Draw three arbitrary triangles. Draw medians in the first triangle, bisectors in the second one and altitudes in the third triangle.

4. Fraction $\frac{p}{q}$ is reducible fraction (can be simplified).

   Show that the fractions

   $$\frac{q}{p};\quad \frac{p-q}{q};\quad \frac{q+p}{p};\quad \frac{p-2q}{q}$$

   Are also reducible. (hint: p and q have same common factor, can be written as

   $$p=km,\quad q=kl\,;\quad k,m,l\,\epsilon\, N(natural\ numbers)$$

5. Write as a sum (multiply expressions):

   Example: $(3+b)(b+4)=3b+12+b^2+4b=b^2+7b+12$

   a. $(x+2)(x+2)$; *b.* $(y+3)^2$; *d.* $(1-2x)(1-2x)$;

6. Represent as decimals:

   $\frac{2^4\cdot 3^7\cdot 5^3\cdot 7^3\cdot 11^1}{2^5\cdot 3^7\cdot 5^5\cdot 7^2}$;

7. Add fractions;

   Example:

   $\frac{1}{x}+\frac{1}{b}=\frac{b+x}{xb}$

   a. $\frac{a}{x}+\frac{5}{y}$; *b.* $\frac{8}{m}-\frac{b}{n}$; *c.* $\frac{c}{k}+\frac{3}{2k}$ $(m,n,x,y,k\neq 0)$