Math 4c. Homework 26.

1. Using the distributive property simplify the expressions:
   Example:
   $3(b-1)-2(b-2)=3b-3-2b+4=b+1$

   $a.\ 5(a+2)-12;$ $c.\ 9+2(c-4);$

   $b.\ m-3(2-m)+8;$ $d.\ (2+x)\cdot 3-5-2x;$

2. Using the distributive property, evaluate by the most convenient way:
   Example:
   $$\frac{32\cdot 5+32\cdot 91}{160\cdot 28}=\frac{32\cdot(5+9)}{160\cdot 28}=\frac{32\cdot 14}{160\cdot 28}=\frac{\cancel{32}\cdot\cancel{14}}{5\cdot\cancel{32}\cdot\cancel{14}\cdot 2}=\frac{1\cdot 1}{5\cdot 2}=\frac{1}{10}$$

   $a.\ \frac{15\cdot 9-15\cdot 6}{9\cdot 30};$ $b.\ \frac{17\cdot 4+17\cdot 9}{34\cdot 52};$ $c.\ \frac{24\cdot 11-24\cdot 3}{300}$

3. 25 identical thick books or 45 identical thin books can fit on a bookshelf. Will there be enough space on a bookshelf for 20 thick and 9 thin books?

4. Wooden cube painted red is cut into 27 identical smaller cubes by making two cuts parallel to each of the three pairs of cube's faces (similar to Rubik's cube).
   How many small cubes will have three faces painted?
   How many small cubes will have two faces panted?
   How many small cubes will have one face painted?
   How many small cubes will not have painted faces at all?

5. Compare:

   Example:

   $$28^2 \quad 1000; \qquad 28^2=28\cdot 28<30\cdot 30=900;\ 900<1000,$$

   therefore $28^2 < 1000$

   $a.\ 28^2 \quad 1000;$ $b.\ 48^2 \quad 3000;$
   $a.\ 42^2 \quad 1500;$ $b.\ 67^2 \quad 3500;$

6. Write the number which extended form is written below;
   Example: $2\cdot 10^3+7\cdot 10^2+2\cdot 10+6=2726;$
   $a.\ 2\cdot 10^3+4\cdot 10^2+5\cdot 10+8;$ $b.\ 7\cdot 10^3+2\cdot 10^2+0\cdot 10+1;$
   $c.\ 9\cdot 10^3+3\cdot 10+3;$ $e.\ 4\cdot 10^3+1\cdot 10^2+1\cdot 10+4;$

7. Evaluate and compare:

   $a.\ 2 \cdot 10^3$ and $(2 \cdot 10)^3$; $b.\ 3 \cdot 2^2$ and $(3 \cdot 2)^3$;
   $c.\ 2 \cdot 5^3$ and $(2 \cdot 5)^3$; $b.\ 12 : 2^2$ and $(12 : 2)^2$;

8. Put digits instead of stars to create the true equalities. How many answers does each problem have?

   $a.\ (2*)^2 = **1$; $b.\ (7*)^2 = ***5$; $c.\ (3*)^2 = ***6$; $d.\ (2*)^2 = **9$;