

Review of Homework #24

- Simplify:
  - $d^n d(-d^{n+1})d^n d^2 =$
  - $2x^2 y^3 \cdot (-4xy^2) =$
  - $3^2 + 3^2 + 3^2 =$
  - $3^k + 3^k + 3^k =$
  - $3^k \cdot 3^k \cdot 3^k =$

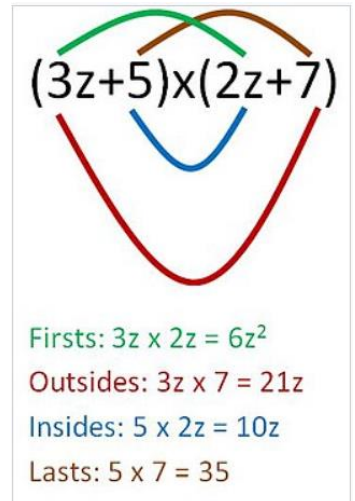
- Solve the inequality:

$$3(5x - 1) < 5x + 29$$

- The volume of water increases by  $\frac{1}{11}$  when it freezes. By how much the volume of ice does decrease when it melts?

## FOIL

(First, Outsides, Insides, Last)



1.  $-a(b + c) =$

2.  $a(b - c) =$

3.  $a(b + c) =$

4.  $(a + b)(c + d) =$

5.  $(a - b)(c - d) =$

6.  $(a - b)(-c - d) =$

7.  $(a - d + c)(f + g - k) =$

8.  $(a + b + c)(f + r + h + k) =$

Solve for the following sets:

1.  $M = \{x > 5\}, K = \{x < 20\}$

$M \cap K =$

$M \cup K =$

2.  $M = \{x \leq 5\}, K = \{x \geq 20\}$

$M \cap K =$

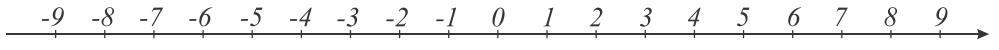
$M \cup K =$

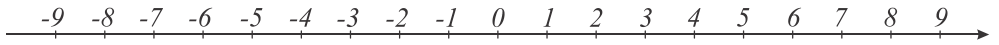
3.  $A = \{a, b, c, d\}, B = \{c, d, e, f\}, C = \{c, e, g, k\}$ .

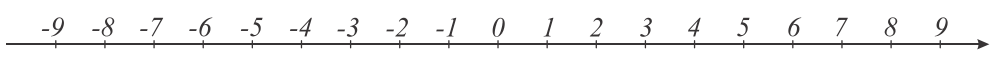
$(A \cap B) \cap C =$

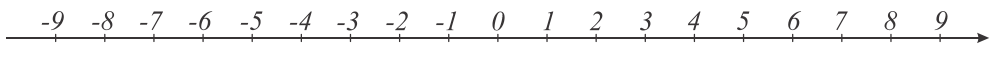
$(A \cup B) \cup C =$

4. Show on the number line points that are satisfying the following inequalities:

a)  $|x| < 4$  

b)  $|x| > 3$  

c)  $\left|x - \frac{1}{2}\right| > 3$  

d)  $\left|x - \frac{1}{2}\right| < 8$  

5. Simplify:

$$\frac{x^5 \cdot x^8}{x^3};$$

$$\frac{b^3 \cdot b \cdot b^7}{b^5 \cdot b^4};$$

$$\frac{a^{90} \cdot a^{10}}{a^{50}};$$

$$\frac{c^{12} \cdot c^2 \cdot c^6}{c \cdot c^{10} \cdot c^3};$$

$$\frac{x^n \cdot x^{20}}{x^{10}};$$

$$\frac{a^n \cdot a^{n+2}}{a^{2n}};$$

$$\frac{c^{8n}}{c^n \cdot c^{4n}};$$

$$\frac{y^{n+12}}{y^n \cdot y^{11}}.$$

6. Simplify or compute:

$$\frac{ab - ac}{b - c} =$$

$$\frac{36 - 42}{48} =$$

$$\frac{3m - 6n}{9a - 18b} =$$

7. A snapping turtle and a painted turtle start to go down to the lake at the same time. The snapping turtle is 80 meters from the lake, and it can crawl 125 cm every 5 minutes. The painted turtle is 16 meters further away from the lake, but it can crawl 12 dm every 4 minutes. Which turtle reaches the lake first if they keep on going by their own speeds and never rest?
8. There are three bags of balls containing identical colors: one has red, the other has green, and the third bag has blue balls. If you take out 75 balls from one of the bags, 46 from the other, and 52 from the third, there is an equal number of balls in each bag. How many balls were in each bag at the beginning if we started with a total of 533 balls?