Math 4

Homework #20

## Complete in this handout:

| <b>1.</b> Review units: | 1 m = 10 dm = 100 cm = 1000 mm<br>1 m <sup>2</sup> = 100 dm <sup>2</sup> = 10,000 cm <sup>2</sup> = 1,000,000 mm <sup>2</sup> |
|-------------------------|---|
|                         |   |

| 100 mm =            | m               | 10 dm =     | mm              | 5 cm =              | dm              |
|---------------------|-----------------|-------------|-----------------|---------------------|-----------------|
| $10 \text{ cm}^2 =$ | dm <sup>2</sup> | $5  dm^2 =$ | cm <sup>2</sup> | $30 \text{ cm}^2 =$ | dm <sup>2</sup> |

**2.** Given three vectors  $\vec{x} = (-1,3)$ ,  $\vec{y} = (3,2)$ , and  $\vec{z} = (2,-1)$  calculate the coordinates of the following vectors:

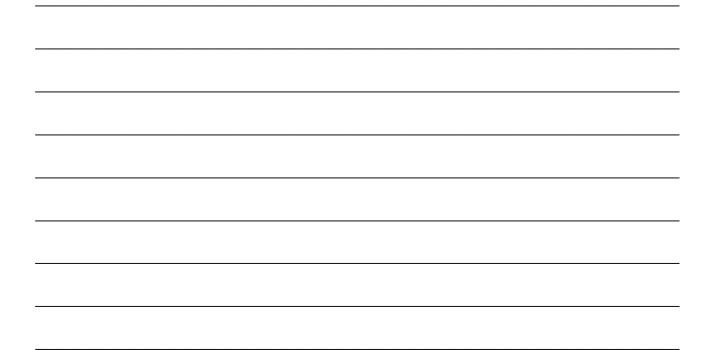
 $\frac{1}{2}\vec{x}=($  , )  $-3\vec{y}=($  , )  $1\frac{2}{3}\vec{z}=($  , )

 $2\vec{x} - \vec{z} = ($  , )  $\vec{z} + \frac{1}{2}\vec{x} = ($  , )  $1\frac{1}{2}\vec{x} + \frac{1}{2}\vec{y} = ($  , )

**3.** One pipe can fill up a pool in 3 hours. The second pipe can do the same in 5 hours. At noon the first pipe was open. An hour later the second pipe was open as well. When will the pool fill up?

**6.** Compare the solutions and the answers for problems 3 and 4. Make a conclusion.

**7.** Make two of your own twin-problems like problems 3 and 4; write them down below. Write down the solution for any of them here.



## *Complete in your notebook*

**1.** Show that:

$$\frac{1\frac{1}{3} - \frac{2}{5} \cdot 1\frac{2}{3}}{1\frac{1}{4} - (\frac{1}{6} + \frac{1}{12})} = \frac{2}{3}$$

- **3.** Solve the equations:
- *a*).  $(2y 4) : 3 + (\frac{1}{6}y + \frac{5}{6}) \cdot 2 = \frac{2}{3}$  (Answer:  $y = \frac{1}{3}$ )
- \* **b).** |2x+1| = |3-x| Hint:  $(|x| = |y| \text{ IF } x = y \text{ OR } x = -y) \text{ Answer: } \{-4, \frac{2}{3}\}$