Complete in this handout:

1. Review units: 1 m = 10 dm = 100 cm = 1000 mm
$1\ m^2 = 100\ dm^2 = 10{,}000\ cm^2 = 1{,}000{,}000\ mm^2$

100 mm = m 10 dm = mm 5 cm = dm

$10\ cm^2$ = dm^2 $5\ dm^2$ = cm^2 $30\ cm^2$ = dm^2

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?

After 1 hour the pool will be filled up to _____

The combined productivity of the two pipes is _____

Filling up the remainder of the pool will take another _____

So the pool will be filled up by _____ ***Answer***: **2:15 PM**

4. A car can make it from town ***A*** to town ***B*** in 3 hours. A truck can cover the same distance in 5 hours. At noon the car leaves from town ***A*** towards ***B***. One hour later the truck leaves from ***B*** towards ***A***. When will the car meet the truck?

After 1 hour the car will cover _____ *of the initial distance. After 1 PM the*

car and the truck will become closer by _____ *of the initial distance.*

They will meet _____ *later (than 1 PM).*

_____

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

_____

_____

_____

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

_____

_____

_____

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_____

Complete in your notebook

1. Show that: $\dfrac{1\frac{1}{3} - \frac{2}{5} \cdot 1\frac{2}{3}}{1\frac{1}{4} - (\frac{1}{6} + \frac{1}{12})} = \frac{2}{3}$

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:** ($|a| = |b|$ IF $a = b$ OR $a + b = 0$) Answer: $\{-4, \frac{2}{3}\}$