

Complete in this handout:

1. Review units:

$$1 \text{ m} = 10 \text{ dm} = 100 \text{ cm} = 1000 \text{ mm}$$

$$1 \text{ m}^2 = 100 \text{ dm}^2 = 10,000 \text{ cm}^2 = 1,000,000 \text{ mm}^2$$

$$100 \text{ mm} = \quad \text{m} \qquad 10 \text{ dm} = \quad \text{mm} \qquad 5 \text{ cm} = \quad \text{dm}$$

$$10 \text{ cm}^2 = \quad \text{dm}^2 \qquad 5 \text{ dm}^2 = \quad \text{cm}^2 \qquad 30 \text{ cm}^2 = \quad \text{dm}^2$$

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

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

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

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 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:** ($|x| = |y|$ IF $x = y$ OR $x = -y$) Answer: $\{-4, \frac{2}{3}\}$