

MATH 5: WORKSHEET 8
FRACTIONS, DECIMALS AND WORD PROBLEMS

1. Compute

$$\begin{array}{lll} (-4) + (-7) = & 3 + (-6) + (-7) = & (-2) + 5 - 4 = \\ -3 + (-1) + 5 = & 14 + (-7) + (-3) = & |(-5) + 4| = \\ |(-3) + (-7)| = & -|3 + (-6)| = & -|(-2) + (-6)| + 1 = \end{array}$$

2. Solve the equations:

$$\begin{array}{ll} \text{a) } x - 12 = -17 & \text{b) } -13 - y = -9 \\ \text{c) } 5 + 2z = -19 & \text{d) } z + |-6| = -15 \\ \text{e) } |x| = 3 & \text{f) } |x - 8| = 12 \end{array}$$

- 3.** Two cities, A and B, are on the same river. It takes the motorboat 2.5 hours to travel from A to B, and 5 hours to travel from B to A (because B is downstream from A, so going back it has to go against the flow). How fast is the river flow if the speed of the boat (in still water, say on a lake) is 12 km/h? How far away are the cities? [Hint: if the flow is x km/h, then going down stream the boat makes $12 + x$ km/h....]

4. A swimming pool can be filled by an inlet pipe in 12 hours and emptied by an outlet pipe in 15 hours. One day the pool is empty and the owner opens the inlet pipe to fill it. However, he forgets to close the outlet pipe. How long will it take the pool to fill?

5. A bank clerk has 60 coins which should be identical but one of them is fake. The fake one looks the same as all other coins but is lighter. Using the balance scales (but no weights — so you have to put coins on both platforms), what is the fastest way of finding the fake coin? What if you do not know whether the fake coin is lighter or heavier than the real one?

6. Here are phrases in Swahili with their English translations:

- atakupenda – He will love you.
- nitawapiga – I will beat them.
- atatupenda– He will love us.
- anakupiga – He beats you.
- nitampenda – I will love him.
- unawasumbua – You annoy them.

Translate the following into Swahili:

- You will love them.
- I annoy him.