Case Study

Meera is a Class 7 student who helps her mother run a small home bakery. One day, they decided to prepare cupcakes, cookies, and brownies for a school event. The total flour available was $4\frac{1}{2}$ kg. Out of this, $\frac{3}{5}$ of the flour was used for cupcakes. The remaining flour was divided equally between cookies and brownies.

To prepare one batch of cupcakes, Meera used 0.75 kg of flour. For cookies, each batch required $\frac{1}{4}$ kg of flour, while brownies needed 0.5 kg per batch. Meera carefully converted mixed fractions into improper fractions and fractions into decimals to ensure correct measurements.

After baking, Meera recorded the weights of the items. The cupcakes weighed 1.25 kg, cookies weighed $\frac{3}{4}$ kg, and brownies weighed 0.6 kg. She added these values using decimals to find the total weight of baked items. Meera realized that understanding fractions and decimals helped her divide ingredients correctly, avoid wastage, and maintain consistency in baking. This experience showed her how mathematical operations on fractions and decimals are useful in everyday life situations like cooking, measuring, and sharing resources.

Questions

1. How much total flour was available with Meera?
   (a) (A) $4\frac{1}{5}$ kg
   (b) (B) $4\frac{1}{2}$ kg
   (c) (C) $3\frac{1}{2}$ kg
   (d) (D) $5\frac{1}{2}$ kg
2. What fraction of flour was used for cupcakes?
   (a) (A) $\frac{2}{5}$
   (b) (B) $\frac{1}{2}$
   (c) (C) $\frac{3}{5}$
   (d) (D) $\frac{4}{5}$
3. How much flour was used for one batch of cupcakes?
   (a) (A) 0.5 kg
   (b) (B) 0.75 kg
   (c) (C) 1.25 kg
   (d) (D) 1.5 kg
4. What is the total weight of all baked items?
   (a) (A) 2.45 kg
   (b) (B) 2.6 kg
   (c) (C) 2.75 kg
   (d) (D) 3.0 kg
5. Which decimal represents the mixed fraction $4\frac{1}{2}$?
   (a) (A) 4.25
   (b) (B) 4.05
   (c) (C) 4.5
   (d) (D) 4.75

Answer Key

- Q1: (B)
- Q2: (C)
- Q3: (B)
- Q4: (B)
- Q5: (C)

Solutions

1. The total flour mentioned in the case study is $4\frac{1}{2}$ kg. Therefore, the correct answer is $4\frac{1}{2}$ kg.
2. According to the case study, $\frac{3}{5}$ of the flour was used for cupcakes. Hence, the correct answer is $\frac{3}{5}$.
3. Flour used for one batch of cupcakes is clearly stated as 0.75 kg. So, the correct answer is 0.75 kg.
4. Total baked weight:
$$1.25 + 0.75 + 0.6 = 2.6$$
Hence, the total weight of baked items is 2.6 kg.
5. Convert the mixed fraction into decimal:
$$4\frac{1}{2} = 4 + 0.5 = 4.5$$
Therefore, the correct decimal representation is 4.5.