Q1.

Ingredients for 6 cookies are:

50 g flour

40 g butter

20 g sugar

30 ml milk

Ingredients for 18 cookies = Ingredients for 12 cookies + Ingredients for 6 cookies are:

Ingredients for 18 cookies are:

100+50 = 150 g flour

80+40 =120 g butter

40+20= 60 g sugar

60+30= 90 ml milk

Q2.

(a)
list of ingredients for 12 muffins:

Self-raising flour: 150 g

Butter: 90 g

Sugar: 60 g

Egg: 1

Ingredients for 36 muffins = Ingredients for 24 muffins + Ingredients for muffins

Self-raising flour =300+150 = 450 g

Butter: 180+90 =270 g

Sugar: 120+60 =180 g

Egg: 2+1=3

(b)

Flour for 24 muffins = 300 g

Flour for 1 muffin = 300 ÷ 24 = 12.5 g

Fatima has 900 g of flour.

$$900 \div 12.5 = 72$$

Fatima can bake a maximum of 72 muffins.

Q3.

Ingredients for 10 chocolates are:

100 g flour
25 g cocoa powder
75 g butter
20 g sugar

Ingredients for 30 chocolates = Ingredients for 20 chocolates + Ingredients for 10 chocolates are:

200+100 =300 g flour
50+25 g= 75 g cocoa powder
150+75 g=225 g butter
40+20 g= 60 g sugar

Q4.

(a)

We know:

30 ml → 15 cupcakes

To find how many cupcakes for 60 ml,

$$\text{Number of cupcakes} = \frac{60}{30} \times 15 = 2 \times 15 = 30$$

Sara makes 30 cupcakes.

(b)

Bilal's ingredients:

- Sugar = 600 g
- Butter = 900 g
- Flour = 1200 g
- Milk = 400 ml

Now find how many sets of 15 cupcakes he can make from each ingredient.

$$\text{Sugar: } \frac{600}{75} = 8$$

$$\text{Butter: } \frac{900}{180} = 5$$

$$\text{Flour: } \frac{1200}{240} = 5$$

$$\text{Milk: } \frac{400}{30} = 13.33$$

The limiting ingredient is the one with the smallest ratio → Butter and Flour (5 sets).

Each set = 15 cupcakes

$$5 \times 15 = 75$$

Bilal can make a maximum of 75 cupcakes.

Q5.

(a)

For Ali (30 muffins)

15 muffins → 150 g butter
30 muffins → $\frac{30}{15} \times 150 = 2 \times 150 = 300\text{g}$

Ali needs 300 g of butter.

(b)

For Hina (20 muffins)

15 muffins → 250 g flour
20 muffins → $\frac{20}{15} \times 250 = \frac{4}{3} \times 250 = 333.33\text{g}$

Hina needs approximately 333 g of flour.

Q6.

Scale factor from 4 people to 10 people = $10 \div 4 = 2.5$.

Multiply each ingredient for 4 people by 2.5 to get amounts required for 10 people:

- Plain flour required = $100 \times 2.5 = 250$g.
  Jessica has 200 g → short by $250 - 200 = 50$g.
- Rolled oats required = $50 \times 2.5 = 125$g.
  Jessica has 130 g → extra $130 - 125 = 5$g (no need to buy).
- Soft brown sugar required = $80 \times 2.5 = 200$g.
  Jessica has 180 g → short by $200 - 180 = 20$g.
- Butter required = $60 \times 2.5 = 150$g.
  Jessica has 200 g → extra $200 - 150 = 50$g (no need to buy).
- Ripe mangoes required = $4 \times 2.5 = 10$mangoes.
  Jessica has 8 → short by $10 - 8 = 2$mangoes.

Q7.

sugar per muffin = 210 ÷ 7 = 30 g

For 20 muffins Lina needs 20 × 30 = 600 g of sugar.

Lina has 600 g.
