

MRB1 Imscrúdú Matamaiticiúil: Taoschnónna

Ceaptar fadhb.

Taifeadtar sonraí.

the problem I am trying to investigate? I am making
20 donuts, 10 glazed and 10 chocolate -

I will have to make 20 donuts for as cheap as possible using ingredients from a shop. I will have to go to two shops and compare the prices between the two shops and find which shop will sell the ingredients cheapest.

this is the recipe and ingredients I will need

↓ doughnut dough recipe ☺

4 cups of flour

75g of sugar

1 tsp of salt

1 1/2 tsp of yeast

56g butter

2 small-medium eggs

1 1/4 cups of warm milk

light Glaze ☺

113g unsalted butter

375g confectioners sugar

1 1/2 cup ORIZOHI Milk

1-2 tsp of Vanilla

Chocolate icing ☺

2tbsp of butter

60g semi-sweet ^{chocolate} confectioners

sugar,

2-3 tbsp boiling water

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By going to compare prices in **tesco** and **lumpes**
~~Stores~~, these are the prices I got in each shop

Tesco -

plain flour - €1.59 2kg

sugar - €0.89 500g

salt - €0.44 750g

yeast - €0.99 6x7g

butter - €2.19 454g

unsalted butter - €1.25 227g

eggs - €1.69 6 free range

milk - €0.99 1L

easter sugar - €0.99 1kg

vanilla - €1.99 25ml

chocolate bar - €1.69 200g

Total price - €14.70

€1.59

€+0.89

€+0.44

€+0.99

€+2.19

€+1.25

€+1.69

€+0.99

€+0.99

€+1.99

€+1.69

€14.70

Roghnaítear
straitéis oiriúnach
chun tabhairt
faoin bhfadhb.

Taifeadtar sonraí.

Leantar nósanna
imeachta
matamaiticiúla
oiriúnacha.

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Purses Stores:

Plain flour - €1.00 2kg
 Sugar - €0.75 500g
 Salt - €0.44 750g
 yeast - €2.99 50g, 8x7g
 butter - €2.19 500g
 unsalted butter - €1.25 227g
 eggs - €1.59 6 free range
 milk - €0.75 1L
 caster sugar - €1.00 500g
 Vanilla - €1.95 25ml
 Chocolate bar - €1.00 100g

Total Price - ~~€~~ 14.91

€1⁴.00
 + €0.⁵75 * I am going to do my shopping
 + €0.44 for the ingredients at tesco
 + €2.99 because I will be able to get
 + €2.19 them cheaper there by 21c
 + €1.25
 + €1.59 I will calculate the amount of each
 + €0.75 ingredient and see how much I'll
 + €1.00 have left after I use some for
 + €1.95 my doughnuts.
 + €1.00
€14.91
~~€14.70~~
 00.21

Déantar nasc
nithiúil leis an
gceist bhunaidh.

Úsáidtear gnáth-
theanga laethúil
chun smaointe a
chur in iúl.

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Téitear ar ais
chuig an straitéis.

~~flour / 2kg - 128g = 2000g - 128g = 1,872g~~
~~sugar / 500g - 75g = 425g~~
~~salt / 750g - 4g = 746g~~
~~yeast / 4 tsp = 4.2g, 1/2 tsp = 2.1, 4 + 2 = 6.3g = 5 sachets left~~
~~butter / 454g - 84g = 370g~~
~~unsalted butter / 227g - 113g = 114g~~
~~eggs / 6 - 2 = 4 eggs~~
~~milk / 1kg is 1000g, 1000g - 57g = 943~~
~~vanilla / 25ml - 9.855 ml = 15.142 ml~~
~~chocolate bar / 200g - 60g = 140g~~
~~caster sugar / 1,000g - 503 = 497g~~

that is ^{the amount} ~~how much~~ I'll have left of the ingredients
 after I use the amount I need.
 I know these answers are right because I used
 a calculator to get the exact amounts.
 I am checking whether we enough to make another
 20 doughnuts.

flour / 1,872g - 128g = 1,744g
 sugar / 425g - 75g = 350g
 salt / 746g - 4g = 742g
 yeast /
 butter / 370g - 84g = 286g
 unsalted butter / 114g - 113g = 1g
 eggs / 4 eggs - 2 eggs = 2 eggs left
 milk / 943 - 57g = 886g
 vanilla / 15ml - 10ml = 5ml
 chocolate bar / 140g - 60g = 80g
 caster sugar / 497g - 503g = -6g
 I cannot make 20 donuts because I was short
 6g in caster sugar.

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I wasn't able to make 20, but can I make 19?

- Flour - $128g \div 20 = 6.4 \times 19 = 121.6g$
 - Sugar - $75g \div 20 = 3.75 \times 19 = 71.25g$
 - yeast - $4.2g \div 20 = 0.21g \times 19 = 4g$
 - Salt - $4g \div 20 = 0.2g \times 19 = 3.8g$
 - butter - $84g \div 20 = 4.2g \times 19 = 79.8g$
 - unsalted butter - $113g \div 20 = 5.65g \times 19 = 107.35g$
 - eggs - $2 \div 20 = 0.1 \times 19 = 1.9 (2)$
 - milk - $57ml \div 20 = 2.85 \times 19 = 54.15ml$
 - Vanilla - $9.3658ml \div 20 = 0.46829 \times 19 = 9.3651ml$
 - chocolate bar - $60g \div 20 = 3 \times 19 = 57g$
 - caster sugar - $503g \div 20 = 25.15g \times 19 = 477.85g$
- I was able to make 19

- Flour $1,872g - 121.6g = 1,750.4g$
- sugar $425g - 71.25g = 353.75g$
- yeast $6.3g - 4g = 2.3g$
- salt $746g - 3.8g = 742.2g$
- butter $370g - 79.8g = 290.2g$
- unsalted butter $114g - 107.35g = 6.65g$
- eggs $4 - 2 = 2$ eggs
- milk $943ml - 54.15ml = 888.85ml$
- Vanilla $15.142ml - 9.3651ml = 5.7769ml$
- chocolate bar $140g - 57g = 83g$
- caster sugar $497g - 477.85g = 19.15g$

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total doughnut price

All together I was able to make 39 donuts for the price €14.70.

Now we find the total cost for 1 doughnut.

$$\text{€}14.70 \div 39 = 0.37692308 \text{ / } 38c$$

1 doughnut is €0.38, ~~if a customer were to buy 39 it would be~~

$$\text{€}0.38 \times 39 = \text{€}14.82$$

If I charge a customer €1.00 ^{per} doughnut I will make €39. but I spent €14.70.

$$\text{€}1.00 \times 39 = \text{€}39.00$$

$$\text{€}14.70$$

$$\text{€}24.30$$

* I think my solution was reasonable because it costed me €14.70 to make 39 doughnuts, I charged €1.00 per doughnut and in the end my profit was €24.30. I think charging €1.00 per doughnut is a fair price to charge someone with because an average cost for a doughnut would be around the same price. Overall I'm fairly happy with my project and I wouldn't charge anything, because I feel like I chose good shops to shop in and I chose a good price for my 20 glazed and 19 chocolate doughnuts. I also used mathematical language and I posed a problem.

Tugtar tuairim maidir le réasúnacht an réitigh agus déantar nasc nithiúil leis an gceist bhunaidh.

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$$\% \text{ profit} = \frac{\text{profit}}{\text{cost}} \times 100$$

$$= \frac{€24.30}{€14.70} \times 100$$

$$= 165\%$$

Assumptions-

I did not consider the cost
of the mixer = €9.99

the cost of electricity = 10 mins = 10c per
hour / 1,000 watts
Oven = 30 mins

40 mins of electricity = 10c / 1,000
watts per hour.

Altogether = €10.10

$$\begin{array}{r} €14.70 \\ + €10.10 \\ \hline €24.80 \end{array}$$

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oiriúnacha.

Aithnítear
toimhdí.

Tuairisceoir a bronnadh: Ag teacht leis na hionchais