Problem of the Week: Week 3 (Sum1): Year 9: Proportion: Direct and inverse

• Solve problems involving direct and inverse proportion, including graphical and algebraic representations

Toad in the hole

Suppose you can buy Toad in the Hole for one person from a supermarket for £1.

Would it be cheaper to make it yourself if you want to feed a family of three?

Shopping list:

- 400g sausages, £2
- 1 litre vegetable oil, £1.45
- 500g plain flour, 48p
- 6 eggs, £1.46
- 1 litre milk, 48p

Ingredients required to make Toad in the Hole for three people:

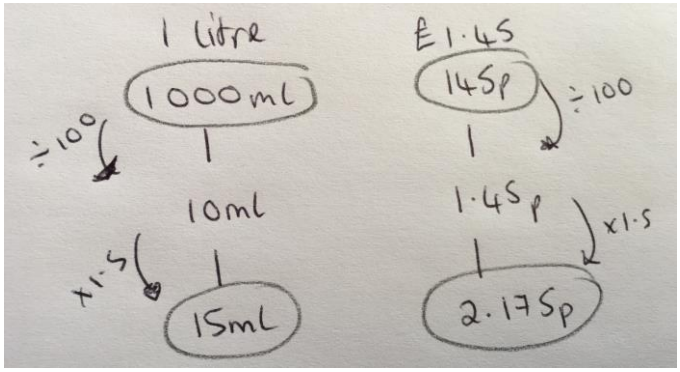
- 400g sausages
- 15ml vegetable oil
- 100g plain flour
- 1 egg
- 250ml milk

Toad in the Hole is a traditional English dish, consisting of sausages in a batter, and served with gravy.

https://nrich.maths.org/8422

Try using four corners approach to find the cost for the ingredients for 3 people:

e.g. for vegetable oil



Solution

Toad in the hole:

How much would it cost to make enough Toad in the Hole to feed a family of three?

You'll need to buy all the things on the shopping list - and you'll only need to buy one of each item, because each provides more than is needed in the recipe for Toad in the Hole for 3.
So...

£2 + £1.45 + 48p + £1.46 + 48p = £5.87

As the supermarket Toad in the Hole will cost £3 (3 x £1), it is cheaper to buy the ready meals!

But you would have a lot of extra oil, flour, eggs and milk left still, so maybe if you are cooking for more people (or if you want to make several meals and freeze them, or you're quite happy to have some of the ingredients left for something else) it would be cheaper to cook from scratch.

So let's see how much what we actually need for a Toad in the Hole for 3 people costs:

400g pack of sausages costs £2

If 1 litre of oil costs £1.45, then 10ml costs 1.45p and so 15ml costs 2.175p

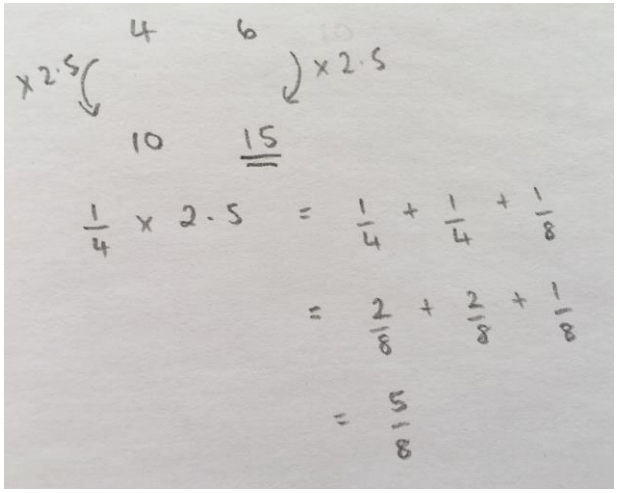
If 500g flour costs 48p, then 100g costs 9.6p

If 6 eggs cost £1.46, then 1 egg costs 24.33p

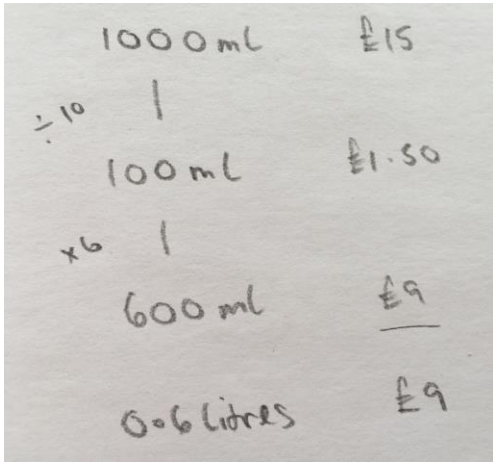
If 1 litre milk costs 48p, then 250ml costs 12p

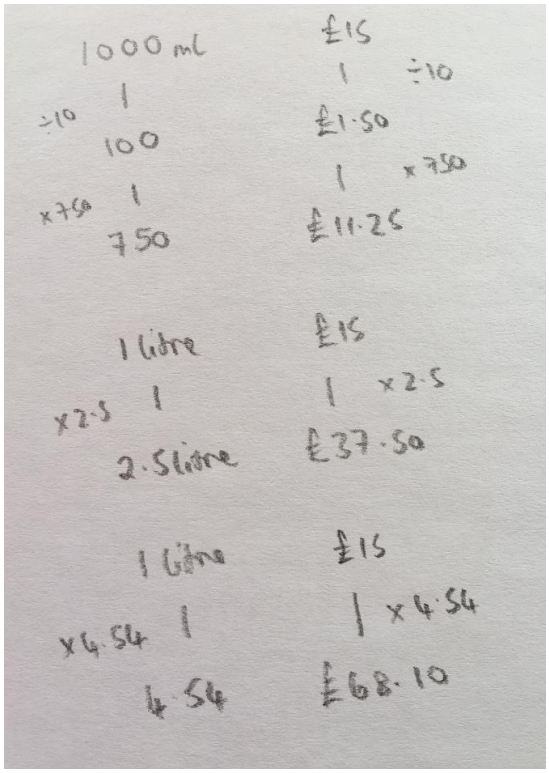
So the actual cost of the meal for three people is £2.46 (to the nearest penny) - rather less than £5.87, and also less than the £3 that three ready meals would cost.

Recipe:

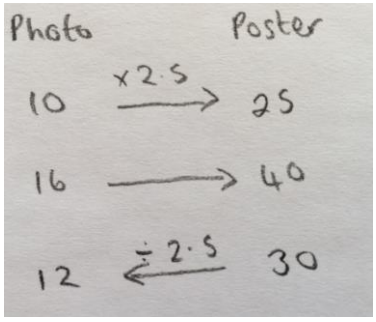
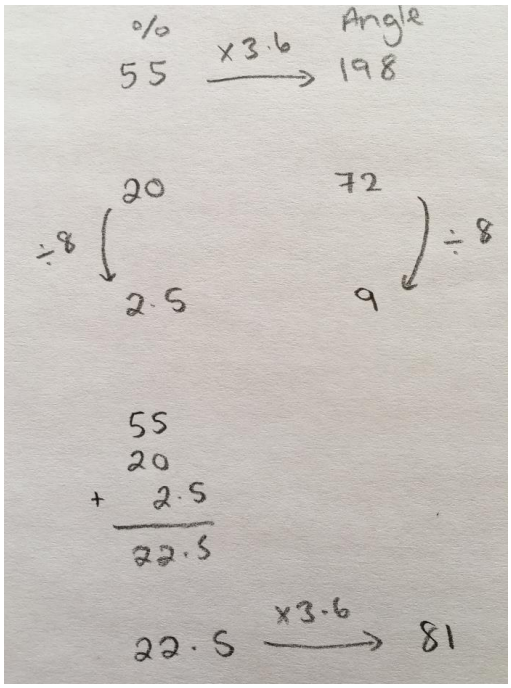


Paint Prices:





Enlarging a photograph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