



Knowledge Organiser

Year 10 Foundation 1-3 (Spring)

Best Buy Questions

GRADE 3

A slightly different type of direct proportion question is comparing the 'value for money' of 2 or 3 similar items. For these, follow the second **GOLDEN RULE**...

1

Divide by the **PRICE in pence** (to get the **amount per penny**)

EXAMPLE:

The local 'Supplies 'n' Vittals' stocks two sizes of Jamaican Gooseberry Jam, as shown on the right. Which of these represents better value for money?

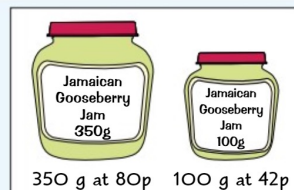
Follow the **GOLDEN RULE** —

divide by the price in pence to get the amount per penny.

In the 350 g jar you get $350 \text{ g} \div 80\text{p} = 4.38 \text{ g per penny}$

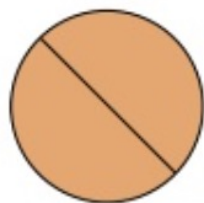
In the 100 g jar you get $100 \text{ g} \div 42\text{p} = 2.38 \text{ g per penny}$

The 350 g jar is better value for money, because you get more jam per penny.



Area and Circumference of Circles

GRADE 3



Area of circle = $\pi \times (\text{radius})^2$

Remember that the radius is half the diameter.

Circumference = $\pi \times \text{diameter}$

= $2 \times \pi \times \text{radius}$

3

$$A = \pi r^2$$

For these formulas, use the π button on your calculator. For non-calculator questions, use $\pi \approx 3.142$.

$$C = \pi D = 2\pi r$$

Learn the **Golden Rule** for Proportion Questions

GRADE 3

There are lots of exam questions which at first sight seem completely different but in fact they can all be done using the **GOLDEN RULE**...

DIVIDE FOR ONE, THEN TIMES FOR ALL

EXAMPLE:

5 pints of milk cost £1.30. How much will 3 pints cost?

My favourite cereal is muesli.



The **GOLDEN RULE** tells you to:

Divide the price by 5 to find how much FOR ONE PINT, then multiply by 3 to find how much FOR 3 PINTS.

1 pint: $£1.30 \div 5 = 0.26 = 26\text{p}$

3 pints: $26\text{p} \times 3 = 78\text{p}$

EXAMPLE:

Emma is handing out some leaflets. She gets paid per leaflet she hands out. If she hands out 300 leaflets she gets £2.40.

How many leaflets will she have to hand out to earn £8.50?

Divide by £2.40 to find how many leaflets she has to hand out to earn £1.

To earn £1: $300 \div £2.40 = 125 \text{ leaflets}$

Multiply by £8.50 to find how many leaflets she has to hand out to earn £8.50.

To earn £8.50: $125 \times £8.50 = 1062.5$

So she'll need to hand out **1063** leaflets.

You need to round your answer up because 1062 wouldn't be enough.

2

Scaling Recipes Up or Down

GRADE 3

EXAMPLE:

Judy is making orange and pineapple punch using the recipe shown on the right. She wants to make enough to serve 20 people. How much of each ingredient will Judy need?

Fruit Punch (serves 8)
800 ml orange juice
140 g fresh pineapple

The **GOLDEN RULE** tells you to divide each amount by 8 to find how much FOR ONE PERSON, then multiply by 20 to find how much FOR 20 PEOPLE.

So for 1 person you need:

And for 20 people you need:

$800 \text{ ml} \div 8 = 100 \text{ ml orange juice}$

$20 \times 100 \text{ ml} = 2000 \text{ ml orange juice}$

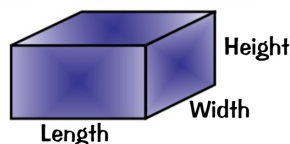
$140 \text{ g} \div 8 = 17.5 \text{ g pineapple}$

$20 \times 17.5 \text{ g} = 350 \text{ g pineapple}$

Volumes of Cuboids

GRADE 2

A **cuboid** is a **rectangular block**. Finding its volume is dead easy:



Volume of Cuboid = length \times width \times height

$$V = L \times W \times H$$

This is the formula for the volume of a **cube** too — where the length, width and height are all the same.

4



How do we use Knowledge Organisers in Mathematics

How can you use knowledge organisers at home to help us?

- **Retrieval Practice:** Read over a section of the knowledge organiser, cover it up and then write down everything you can remember. Repeat until you remember everything.
- **Flash Cards:** Using the Knowledge Organisers to help on one side of a piece of paper write a question, on the other side write an answer. Ask someone to test you by asking a question and seeing if you know the answer.
- **Mind Maps:** Turn the information from the knowledge organiser into a mind map. Then reread the mind map and on a piece of paper half the size try and recreate the key phrases of the mind map from memory.
- **Sketch it:** Draw an image to represent each fact; this can be done in isolation or as part of the mind map/flash card.
- **Teach it:** Teach someone the information on your knowledge organiser, let them ask you questions and see if you know the answers.

How will we use knowledge organisers in Mathematics?

Knowledge organisers will be used before I complete a Learning Check or Common Assessment. I will spend part of the lesson looking over each of the key topics of the half term before completing the Learning Check or Common Assessment.

I will also use these at home to complete my own independent learning and revision of these key topics.

GLUE HERE

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