# OCR 02 Fractions, Decimals and Percentages (Foundation)

**Do not use a calculator for questions 1 to 7.**

1. Find 20% of £350.
2. Write the following decimals in order of size, smallest first.

0.16 0.1 0.601 0.106

1. Write  as a decimal.
2. Work out .
3. Work out .
4. Calculate  divided by .
5. Calculate .
6. Insert <, > or  to make each of the statements correct.

 ……… 0.75 0.62 ………   ……… 0.875

1. Jermaine’s rectangular bedroom measures 3 m by 4 m. Jermaine buys a new bed that measures 135 cm by 190 cm. What percentage of the floor space is covered by the bed?
2. A clothes shop had a sale with 12% off the original price of all dresses. Keeley paid £57.20 for a dress in the sale. Calculate the difference between the sale price and the original price of the dress.
3. Given that , write down the answer to . Explain your reasoning.
4. Ruhollah says “January’s actual sales amount is £120 000, 50% more than the expected sales amount!”. Is Ruhollah correct? Show your working.

|  |  |
| --- | --- |
| **Month** | **Expected sales amount** |
| January | £80 000 |
| February | £60 000 |
| March | £75 000 |

1. Four friends split the bill for a meal. Medgar pays  of the bill amount, Rosa pays , Malcolm pays one quarter and Martin pays one fifth. The amounts they pay total more than the bill and they leave the extra as a tip. Show that the tip they leave is 15% of the bill.
2. Kate gets a new job and her salary increases from £21 500 to £24 510.

Show that this is a 14% increase.

1. State two mathematical reasons why this pie chart is misleading.

0.25

45%

1. David currently earns £8.50 per hour. He has a pay review and his boss offers him either a £1.50 per hour increase or an increase of 13%. Which option should David choose?
2. Asif sells orange drink. He has  litres of orange drink to transfer into  litre bottles.

How many of these bottles can he completely fill?

1. A car cost £2475. Emily paid 16%, Fred paid  and Neil paid the rest.

How much did Neil pay?

1. Clare and Gemma live in a shared flat that has an annual service charge of £1125. Gemma pays  of the annual service charge. Clare pays the rest in equal monthly amounts. How much does Clare pay each month?
2. Martha puts £450 into a savings account that pays 3.5% compound interest annually. How much will be in Martha’s account after three years? What will be the overall percentage increase in Martha’s savings? State an assumption you have made.

### Answers

1. £70
2. 0.1, 0.106, 0.16, 0.601
3. 0.8333333…
4.  or 0.3125
5. 
6. 
7. 
8.  < 0.75 0.62 >   0.875
9. Floor space covered .
10.  of the original price, so original price is £65. Keeley saved £7.80.
11. 50.463, using place value. Initial calculation has been divided by 1000 as each number in the calculation has been divided.
12. Yes. 
13. 



1. Salary increase . Percentage increase .
2. 45% and  sections are not accurate proportions of the pie chart.

The values on the three sections sum to more than 1.

1. Increase of 13% gives new hourly rate of £9.61; £1.50 increase gives new hourly rate of £10 per hour so this is the better option.
2. , so Asif can completely fill 16 bottles.
3. Emily pays £396; Fred pays £825 and Neil pays £1254.
4. .  per month.
5. After three years, amount .

Overall percentage increase .

Assume no money withdrawn or added, value of interest does not change or any other reasonable assumption.

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| **Assessment Objective** | **Qu.** | **Topic** | **R** | **A** | **G** |  | **Assessment Objective** | **Qu.** | **Topic** | **R** | **A** | **G** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| AO1 | 1 | Calculate a percentage of an amount |  |  |  |  | AO1 | 1 | Calculate a percentage of an amount |  |  |  |
| AO1 | 2 | Order decimals |  |  |  |  | AO1 | 2 | Order decimals |  |  |  |
| AO1 | 3 | Convert fractions to decimals |  |  |  |  | AO1 | 3 | Convert fractions to decimals |  |  |  |
| AO1 | 4 | Divide a decimal by a decimal |  |  |  |  | AO1 | 4 | Divide a decimal by a decimal |  |  |  |
| AO1 | 5 | Add fractions |  |  |  |  | AO1 | 5 | Add fractions |  |  |  |
| AO1 | 6 | Multiply fractions |  |  |  |  | AO1 | 6 | Multiply fractions |  |  |  |
| AO1 | 7 | Calculate with fractions |  |  |  |  | AO1 | 7 | Calculate with fractions |  |  |  |
| AO1 | 8 | Use symbols |  |  |  |  | AO1 | 8 | Use symbols |  |  |  |
| AO1 | 9 | Calculate a percentage of a quantity |  |  |  |  | AO1 | 9 | Calculate a percentage of a quantity |  |  |  |
| AO1 | 10 | Find the original amount after a percentage change |  |  |  |  | AO1 | 10 | Find the original amount after a percentage change |  |  |  |
| AO2 | 11 | Use place value |  |  |  |  | AO2 | 11 | Use place value |  |  |  |
| AO2 | 12 | Calculate a percentage of a quantity |  |  |  |  | AO2 | 12 | Calculate a percentage of a quantity |  |  |  |
| AO2 | 13 | Calculate with fractions |  |  |  |  | AO2 | 13 | Calculate with fractions |  |  |  |
| AO2 | 14 | Calculate a percentage increase |  |  |  |  | AO2 | 14 | Calculate a percentage increase |  |  |  |
| AO2 | 15 | Evaluate a chart with a fraction, decimal and a percentage |  |  |  |  | AO2 | 15 | Evaluate a chart with a fraction, decimal and a percentage |  |  |  |
| AO3 | 16 | Calculate percentage increase |  |  |  |  | AO3 | 16 | Calculate percentage increase |  |  |  |
| AO3 | 17 | Divide mixed numbers |  |  |  |  | AO3 | 17 | Divide mixed numbers |  |  |  |
| AO3 | 18 | Solve a problem involving fractions and percentages of an amount |  |  |  |  | AO3 | 18 | Solve a problem involving fractions and percentages of an amount |  |  |  |
| AO3 | 19 | Solve a problem with fractions |  |  |  |  | AO3 | 19 | Solve a problem with fractions |  |  |  |
| AO3 | 20 | Solve a problem involving repeated percentage change |  |  |  |  | AO3 | 20 | Solve a problem involving repeated percentage change |  |  |  |