

OCR 02 Fractions, Decimals and Percentages (Foundation)

Do not use a calculator for questions 1 to 7.

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

0.16 0.1 0.601 0.106

- Write $\frac{5}{6}$ as a decimal.

- Work out $0.25 \div 0.8$.

- Work out $\frac{3}{5} + \frac{4}{7}$.

- Calculate $12\frac{1}{3}$ divided by $\frac{3}{8}$.

- Calculate $\frac{3}{4} + \frac{3}{4} \times \frac{5}{7}$.

- Insert $<$, $>$ or $=$ to make each of the statements correct.

$$\frac{2}{3} \dots\dots\dots 0.75$$

$$0.62 \dots\dots\dots \frac{3}{8}$$

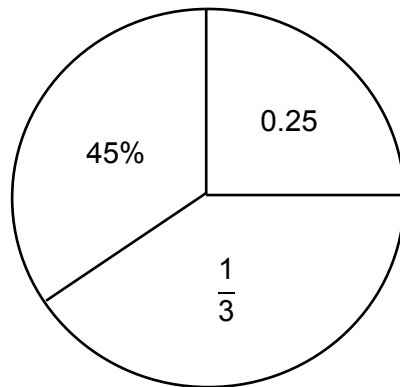
$$\frac{7}{8} \dots\dots\dots 0.875$$

- 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?
- 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.
- Given that $567 \times 89 = 50463$, write down the answer to 5.67×8.9 . Explain your reasoning.

12. 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

13. Four friends split the bill for a meal. Medgar pays $\frac{3}{10}$ of the bill amount, Rosa pays $\frac{2}{5}$, 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.
14. Kate gets a new job and her salary increases from £21 500 to £24 510. Show that this is a 14% increase.
15. State two mathematical reasons why this pie chart is misleading.



16. 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?
17. Asif sells orange drink. He has $12\frac{1}{2}$ litres of orange drink to transfer into $\frac{3}{4}$ litre bottles. How many of these bottles can he completely fill?
18. A car cost £2475. Emily paid 16%, Fred paid $\frac{1}{3}$ and Neil paid the rest. How much did Neil pay?
19. Clare and Gemma live in a shared flat that has an annual service charge of £1125. Gemma pays $\frac{5}{9}$ of the annual service charge. Clare pays the rest in equal monthly amounts. How much does Clare pay each month?
20. 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. $\frac{5}{16}$ or 0.31255. $\frac{21}{35} + \frac{20}{35} = \frac{41}{35} = 1\frac{6}{35}$ 6. $\frac{37}{3} \times \frac{8}{3} = \frac{296}{9} = 32\frac{8}{9}$ 7. $\frac{3}{4} + \frac{15}{28} = \frac{21}{28} + \frac{15}{28} = \frac{36}{28} = 1\frac{2}{7}$ 8. $\frac{2}{3} < 0.75$ $0.62 > \frac{3}{8}$ $\frac{7}{8} = 0.875$ 9. Floor space covered = $\frac{\text{Area of bed}}{\text{Area of bedroom}} \times 100 = \frac{1.35 \times 1.9}{3 \times 4} \times 100 = 21.375 = 21.4\%$.

10. £57.20 = 88% 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. $£80000 + \frac{£80000 \times 50}{100} = £120000$ 13. $\frac{3}{10} + \frac{2}{5} + \frac{1}{4} + \frac{1}{5} = 1\frac{3}{20}$
 $1\frac{3}{20} - 1 = \frac{3}{20} = 15\%$ 14. Salary increase = $24510 - 21500 = 3010$. Percentage increase = $\frac{3010}{21500} \times 100 = 14\%$.15. 45% and $\frac{1}{3}$ sections are not accurate proportions of the pie chart.

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

16. 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.

17. $\frac{25}{2} \div \frac{3}{4} = \frac{25}{2} \times \frac{4}{3} = \frac{100}{6} = 16\frac{2}{3}$, so Asif can completely fill 16 bottles.

18. Emily pays £396; Fred pays £825 and Neil pays £1254.

19. $\frac{4}{9} \times 1125 = £500$. $500 \div 12 = £41.67$ per month.

20. After three years, amount = $450 \times 1.035^3 = £498.92$.

$$\text{Overall percentage increase} = \frac{498.92 - 450}{450} \times 100 = 10.87\%.$$

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

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