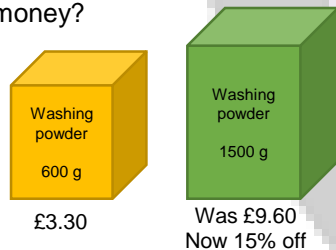


# Ratio and Proportion Revision Mat

## Applied Ratio

1) A drink is mixed in the ratio lemonade : orange : cranberry = 6 : 3 : 2. What fraction is orange?

2) Washing powder is sold in two sizes, 600 grams and 1500 grams. Which size is better value for money?



3) Laura buys a saddle in the UK for £850. Delivery is free. Steve buys the same saddle from Holland for 990 Euros. He pays 15 Euros for delivery. £1 = 1.18 Euros. Including the delivery charge, whose saddle is cheaper?

4) Here are the ingredients to make 8 biscuits. Work out the ingredients to make 20 biscuits.

75 g flour  
50 g sugar  
40 g butter  
2 egg yolks

## Direct and Inverse Proportion

1)  $y$  is directly proportional to  $R^2$ . When  $R = 4$ ,  $y = 24$ . Work out the value of  $R$  when  $y = 1350$

2)  $y$  is inversely proportional to  $x^2$  where  $x > 0$ . When  $x = 2$ ,  $y = 20$ . Work out the value of  $x$  when  $y = 5$

3)  $w$  is directly proportional to  $y$ . When  $y = 4$ ,  $w = 14$ . Work out the value of  $w$  when  $y = 9$

4)  $w$  is inversely proportional to  $x^2$ . When  $x = 2$ ,  $w = 5$ . Work out the value of  $w$  when  $x = 10$

## Recurring Decimals

1) Which of these when converted to decimals are recurring decimals? Circle your answers.

$$\frac{1}{3} \quad \pi \quad \sqrt{3} \quad \frac{3}{16} \quad \frac{5}{7}$$

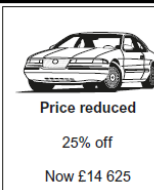
2a) Show that  $\frac{4}{9}$  is equivalent to  $0.\dot{4}$

b) Using part (a), or otherwise, write  $0.9\dot{4}$  as a fraction.

3) Convert  $0.1\dot{7}\dot{2}$  to a fraction in its lowest terms.

## Reverse Percentages

1) Work out the price of the car before it was reduced.



2) I increase a number by 24%. The answer is 6014. What number did I start with?

3) In a sale the normal price of a dress is reduced by 25%. The sale price is then reduced by £10. The dress is now priced at £80. The manager says, "The price is now one-third less than the normal price." Show that he is correct.

4) Jane and Laura each have a meal. Jane pays £41.80 which includes a £4 tip. Laura also pays £41.80 which includes a 10% tip. Who pays the greater tip?

## Compound Interest

1) Loren puts £600 in a bank account. The account pays 3% compound interest each year. After one year she withdraws £200. How much will she have in the account after two years?

2) An amount of money was invested for 8 years. It earned compound interest at 2.5% per year. After 8 years the total value of the investment was £11 696.67. Tom is trying to work out the total interest earned. State what is wrong with Tom's method.

Interest for  
8 years =  
 $£11\ 696.67 \times$   
 $0.025 \times 8$

3) John bought a 2-year-old car for £12 000. Three years later he decides to sell the car; "I think that the value of the car is inversely proportional to its age". John estimates the value of the car using this idea. The actual value of the car depreciates by 20% each year. Work out the difference between John's estimate and the actual value.

## Exponential Growth and Decay

1) The population of Knapsford in 2010 was 3800 and is believed to be grow at a rate of 1.5% a year. Calculate the population of Knapsford in 2011 and 2012.

2) The population of a form of algae is believed to grow exponentially. On day 1 the population of algae was 2240. By day 4 it increased to 35000. Calculate the population of the algae by day 10.