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| Year 8 | | *Ratio Rates and Proportion* | Non Calculator  Section |
| * Recognise and solve problems involving simple ratios (ACMNA173) * Solve a range of problems involving rates and ratios, with and without digital technologies  (ACMNA188) * Investigate, interpret and analyse graphs from authentic data (ACMNA180 ) | | | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| *Answer all questions in the spaces provided on this test paper by:*  *Writing the answer in the box provided.*  *or*  *Shading in the bubble for the correct answer from the four choices provided.*  *Show any working out on the test paper. Calculators are* ***not*** *allowed.* | | | |
|  | **Questions 1 – 2 refer to the following.**  On a table there are some mugs and some glasses. | | |
|  | What is the ratio of mugs to glasses in simplest form? | | |
|  | The cupboard has mugs and glasses in the same ratio as shown above.  There are 18 mugs in the cupboard.  How many glasses are there in the cupboard?    glasses. | | |
|  | The cupboard holds only mugs and glasses.      What fraction of the cupboard’s contents are mugs? | | |
|  | Freya has 18 trophies on her shelf. Twelve of them are for netball and the rest are for dancing.  The ratio of netball trophies to dancing trophies is:  1 : 2 2 : 1 2 : 3 3 : 2 | | |
|  | The ratio 8 : 20 when written in simplest form is:  2 : 3 2 : 5 5 : 2 3 : 5 | | |
|  | A harvester covers a 120 hectare paddock in 5 hours. What is this as a rate in hectares per hour?  ha/h. | | |
|  | A car travels at 45 km/h. How far would it travel in 8 hours?  km. | | |
|  | Dina has 50 books, 15 of which are biographies and the rest are novels. What is the ratio of biographies to novels? (answer in simplest form) | | |
|  | Which ratio is equivalent to 3 : 4?  4 : 6 6 : 5 9 : 16 12 : 16 | | |
|  | Write the ratio 36 : 16 in simplest form. | | |
|  | Complete the statement below.  40 : 30 = 16 : | | |
|  | Write the ratio 4.5 : 1.5 in simplest form. | | |
|  | Divide 200 in the ratio 3 : 2. | | |
|  | A car travels 120 km using 12 litres of fuel.  What is the rate of use in km/litre?  6 km/litre. 8 km/litre. 10 km/litre. 12 km/litre. | | |
|  | A tiler can lay 12 m2/hour. How long would it take to lay an area of 66 m2?  hours. | | |
|  | What is the ratio  in simplest form?  2 : 3 3 : 4 4 : 3 8 : 3 | | |
|  | What is the ratio *30 minutes : 1¼ hours* in simplest form ?  3 : 4 3 : 5 2 : 5 45 : 75 | | |
|  | Divide 800 marbles in the ratio 9: 1. | | |
|  | Three kilograms of cherries is divided between Ken and Leo in the ratio 4 : 1. How many grams of cherries does Ken get?  600 g 750 g 2 000 g 2 400 g | | |
|  | Marcie mixes concrete which consists of sand, aggregate and cement in the ratio 5 : 3 : 1.  If she needs 36 buckets of concrete how many buckets of sand will she need?  4 buckets.  12 buckets.  20 buckets.  24 buckets. | | |

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| Year 8 | | *Ratio Rates and Proportion* | Calculator Allowed  Short Answer  Section |
|  | | | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| *Answer all questions in the spaces provided on this test paper by:*  *Writing the answer in the box provided.*  *or*  *Shading in the bubble for the correct answer from the four choices provided.*  *Show any working out on the test paper. Calculators are allowed.* | | | |
|  | In a town there are 400 adults and 250 children.  What is the ratio of adults to children in simplest form? | | |
|  | Complete the statement below.  24 : 32 = 3 : | | |
|  | What is the ratio 1.25 : 0.5 in simplest form?  2 : 5 5 : 2 5 : 20 50 : 2 | | |
|  | The ratio of ducks to swans on a lake is 15 : 7.  There are 110 ducks and swans in total on the lake.  How many ducks are there? | | |
|  | To mix a liquid fertiliser, the label says to mix 45 g of fertiliser in a 9 litre watering can of water. What is this as a rate in g/L?  5 g/L 9 g/L 15 g/L 405 g/L | | |
|  | Eddie worked out that the time he spent at home and at work was in the ratio 6: 5 respectively.  He spent 45 hours at work.  How many hours did he spend at home?  hours | | |
|  | A map has a scale of 1 : 20 000.  Liza measures the distance between two houses on the map to be 12 cm.  How far apart are the houses?  1.2 km 2.4 km 4.8 km 12 km | | |
|  | The ratio 500 g : 1.5 kg in simplest form, without using units, is;  1 : 2 1 : 1.5 1 : 3 1 : 5 | | |
|  | Mitchell is a cricketer who has a bowling strike rate of 4.5 wickets/innings.  How many wickets did he get if he played 20 innings?  wickets | | |
|  | Tara is laying carpet tiles in her house and it takes her 6 hours to lay 45 m2 of carpet tiles.  At what rate did she lay the tiles?  m2/hour | | |
|  | Amber records how she spends 8 hours at work one day.  She spend the time filing, typing and copying in the ratio 6 : 7 : 3.  How long did she spend typing?  2 hours 2.5 hours 3 hours 3.5 hours | | |
|  | Which of these ratios is equivalent to 5 : 14? | | |
|  | Luke has scored at a rate of 18 points/game for his footy team. If he has scored 342 points, how many games has he played? | | |
|  | Deanna drives her car a distance of 450 km at an average speed of 90 km/h.  How much less time would the journey have taken if she had averaged 100 km/h?    It would take minutes less. | | |
|  | **Questions 15 and 16 refer to the following.**  The distance-time graph represents Thomas’ journey from home in Melbourne to Bendigo for a meeting and then back home. | | |
|  | How long did Thomas stay in Bendigo?  1 hour 1.5 hours 2 hours 4 hours | | |
|  | At what average speed did Thomas travel on his way to Bendigo?  km/h. | | |
|  | On his journey home, he had a good run until heavy traffic slowed his journey.  How far from home was he when he met the heavy traffic?  km from home. | | |
|  | By how much was his speed lowered by the heavy traffic?  The speed dropped from 90 km/h to 10 km/h.  The speed dropped from 80 km/h to 10 km/h.  The speed dropped from 90 km/h to 20 km/h.  The speed dropped from 80 km/h to 20 km/h. | | |

Ratio Rates and Proportion

ANSWERS

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| Non Calculator Section ( 1 mark each) |

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| Q no |  | Answer |
|  | M : G = 6 : 4 = 3 : 2 |  |
|  | M : G = 3 : 2 = 18 : G  Times by 6 to get new ratio.  Number of glasses = |  |
|  | Ratio is M : G = 18 : 12  Total is 30  Fraction which are mugs = |  |
|  | Ratio N : D = 12 : 6 = 2 : 1 | 2nd Answer |
|  | 8 : 20 = 2 : 5 | 2nd Answer |
|  | Rate = |  |
|  | 45 km/h in 8 hrs travels |  |
|  | B : N = 15 : (50-15) = 15 : 35 = 3 : 7 |  |
|  | The last one is equivalent. | 4th Answer. |
|  | 36 : 16 = 9 : 4 |  |
|  | 40 : 30 = 4 : 3 = 16 : **12** |  |
|  | 4.5 : 1.5 = 45 : 15 = 3 : 1. |  |
|  |  |  |
|  | 120 km using 12 litres = | 3rd Answer |
|  |  |  |
|  |  | 4th Answer |
|  |  | 3rd Answer |
|  |  |  |
|  | 3 kg = 3000g  Ken gets  of them. | 4th Answer |
|  | 36 buckets of concrete is 4 times the total of the contents(9 parts).  Amount of sand = | (3rd Answer) |

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| Calculator Allowed Short Answer Section ( 1 mark each) |

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| Q no |  | Answer |
|  |  |  |
|  |  |  |
|  |  | (2nd Answer) |
|  |  |  |
|  |  | (1st Answer) |
|  |  |  |
|  | Real distance is 20 000 times the map distance. | (2nd Answer) |
|  |  | (3rd Answer) |
|  |  |  |
|  |  |  |
|  |  | 4th Answer |
|  |  | (1st Answer) |
|  |  |  |
|  |  |  |
|  | 2 hours | (3rd Answer) |
|  |  |  |
|  | 40 km from home ( when gradient of line changes) |  |
|  |  | 4th Answer |