MASTERS

Foundation Topic

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| Q | Question | Answer |
| 1 | X=2500 to the nearest 100.  Write down which one of these numbers could have not been x.  2450, 2449, 2495, 2499 | 2449 |
| 2 | Simplify  2w -2x + 3w - 5x + x2 | 5w-7x+x2 |
| 3 | DVDs are £5 each and have a buy one get one free offer. How many DVDs can you get for £35 | 7x5 =35 so gets 14 DVDs |
| 4 | Work out 258% of 6300 | 16254 |
| 5 | Toilet rolls are sold in packs of 4 for £1.89 and 9 for £3.99  Which pack is better value? | 4x0.4725=1.89  9x0.443333=3.99  So 9 pack is better value |
| 6 | Calculate of 200 | 120 |
| 7 | What is the probability of rolling a 5 on an ordinary fair dice | 1/6 |
| 8 | Write down all the factors of 18 | 1,2,3,6,9,18 |
| 9 | A hotel charges £69 to stay per night, £5.99 for breakfast, £9.95 for an evening meal.  Jack stays for 4 nights, has 3 breakfasts and 2 evening meals.  How much does he pay altogether? | £351.74 |
| 10 | A lottery win is split between Ben, Amaan and Sophie in the ratio 2:3:5. What fraction of the win does Amaan get? | 3/10 |
| Total out of 10 | |  |

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| Q | Question | Answer |
| 1 | X=2550 to the nearest 10.  Write down which one of these numbers could have not been x.  2552, 2549.5, 2555, 2548 | 2555 |
| 2 | Solve  2(w+5)=14 | W=2 |
| 3 | DVDs are £7 each and have a buy 2 get one free offer. How many DVDs can you get for £50 | 7x7 =49 so 10 DVDs as you get 3 free. £1 left |
| 4 | Work out 169% of 5200 | 8788 |
| 5 | Toilet rolls are sold in packs of 4 for £6 and 7 for £10.43  Which pack is better value? | 4x1.50 = 6  7x1.49=7  So pack of 7 is better value |
| 6 | Calculate of 108 | 84 |
| 7 | What is the probability of rolling a prime number on an ordinary fair dice | 2,3,5 so 1/2 |
| 8 | Write down the LCM of 9 and 12 | 36 |
| 9 | A hotel charges £59 to stay per night, £6.99 for breakfast, £11.95 for an evening meal.  Olivia stays for 3 nights, has 3 breakfasts and 2 evening meals. She is charged £233.82. Is this correct and if not what might the error be? | Correct Bill = £221.87  Error is 11.95 she has been charged for an extra evening meal |
| 10 | A lottery win is split between Ben, Amaan and Sophie in the ratio 3:4:1. What fraction of the win does Sophie get? | 1/8 |
| Total out of 10 | |  |

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| Q | Question | Answer |
| 1 | X=12.2 to 1dp.  Write down which one of these numbers could have not been x.  12.249, 12.1499, 12.1984, 12.235 | 12.1499 |
| 2 | Solve  3(2x-3)=9 | X=3 |
| 3 | Apples are 55p and pears are 60p. Adam needs 7 apples and 5 pears. How much change will he get from a £10 note? List the change he will get using the lowest number of coins. | £6.85 for fruit. £3.15 change.  5p, 10p, £2 coin, £1 coin |
| 4 | Work out 38% of 78200 | 29716 |
| 5 | Perfume is sold for 40ml for £49.50 and 75ml for £93.  Which bottle is better value? | 1.2375 per ml  1.24 per ml  So 40ml bottle is better value |
| 6 | Calculate of 147 | 42 |
| 7 | Which is more likely; rolling an odd number or rolling a factor of 12 on a fair 6 sided dice | Factors of 12 = 1,2,3,4,6,12 so 4/6  Odd = 1,3,5,7,9 so 3/6  Factor of 12 is more likely |
| 8 | Represent 195 as a product of prime factors | 3x5x13 |
| 9 | An electricity meter measured 1200units at the beginning of the month and 1524units at the end. Electricity costs 10p per unit  How much is the bill for the month? | 324units x 10p = £32.40 |
| 10 | A lottery win is split between Ben, Amaan and Sophie in the ratio 6:7:9. What fraction of the win does Ben get, simplify your answer? | 6/22 = 3/11 |
| Total out of 10 | |  |

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| Q | Question | Answer |
| 1 | Round 2437.89 to 3 significant figures | 2440 |
| 2 | Solve  5(4x+3)=135 | X=6 |
| 3 | Ashley is saving up to buy a mountain bike that costs £250. He baby-sits each week for 6 hours for £4.50 an hour, and works on a Saturday for £33. He saves ¾ of his weekly earnings. How many weeks will it take him to save up for his bike? | 6 x 4.5 = 27  27+33=60  60 x ¾ = 45  45x5=225  45x6=270  It will take 6 weeks |
| 4 | Work out 154% of 78200 | 120428 |
| 5 | A supermarket sells bottled water in three sizes  400ml for 38p, 2l for 98p or 5l for £2.50.  Which bottle is better value? | 95p per l  49p per l  50p per l  So 2l bottle is better value |
| 6 | Calculate of 153 | 85 |
| 7 | Which is more likely; rolling a prime number or rolling a factor of 9 on a fair 6 sided dice | Factors of 9 = 1,3,9 so 2/6  Prime = 1,2,3,5 so 4/6  Prime number is more likely |
| 8 | Represent 220 as a product of prime factors | 2x2x5x11 |
| 9 | An electricity meter measured 1223units at the beginning of the month and 1638 units at the end. Electricity costs 12p per unit  How much is the bill for the month? | 415units x 12p = £49.80 |
| 10 | A length of wood is cut into two pieces in the ratio 3:7. What fraction of the original length is the shorter piece? | 3/10 |
| Total out of 10 | |  |

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| --- | --- | --- |
| Q | Question | Answer |
| 1 | Order these decimals from largest to smallest  1.29, 1.189, 1.289, 1.100001 | 1.29, 1.289, 1.189, 1.100001 |
| 2 | Solve  4(5t+8)=12 | t=-1 |
| 3 | Jemma is saving up to buy a mountain bike that costs £330. She baby-sits each week for 7 hours for £5.75 an hour, and works on a Saturday for £24.25. She saves 4/5 of her weekly earnings. How many weeks will it take her to save up for her bike? | 7 x 5.75 = 40.25  40.25+24.25=64.50  64.50 x 4/5 = 51.60  51.60x6=309.60  51.60x7=361.20  It will take 7 weeks |
| 4 | Work out 22.5% of 600 | 135 |
| 5 | A supermarket sells boxes of corn flakes in two sizes;  750g for £1.64 and 0.5kg for £1.10  Which box is better value? | 1.64 ÷3 x 2 = 1.093333 for 500g  So 750g box is better value |
| 6 | Calculate of 147 | 98 |
| 7 | Which is more likely; rolling an odd number or rolling a number less than 3 on a fair 6 sided dice | Less than 3 = 1,2 so 2/6  Odd = 1,3,5,7,9 so 3/6  Odd number is more likely |
| 8 | Represent 50 as a product of prime factors | 2x5x5 |
| 9 | There are 48 cans of soup on a crate. A supermarket has a delivery of 110 crates for £1980 and sells a can for 41p. How much profit does the supermarket make on the delivery? | 0.41x48x110=2164.80  2164.80-1980=£184.80 |
| 10 | Divide £240 in the ratio 3:5:12 | 36:60:144 |
| Total out of 10 | |  |

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| Q | Question | Answer |
| 1 | X=1200 to 2sf.  Write down which one of these numbers could have not been x.  1151, 12491, 1189.29, 1249 | 12491 |
| 2 | Solve  2x+3=x+5 | X=2 |
| 3 | John buys a mountain bike. He pays a deposit of 10% of the cash price followed by 24 monthly payments of £15. In total he pays £395. What was the cash price of the bike? | 395 – (24x15) = 35  35 x 10 = £350 |
| 4 | Work out 27.5% of 200 | 55 |
| 5 | Mary and Hannah are arguing over who is better at maths.  Mary scored 49/80 on a test and Hannah scored 60/100 on a test of the same standard. Who did better? | Mary 61.25%  Hannah 60%  Mary did better |
| 6 | Calculate of 96 | 36 |
| 7 | Which is more likely; rolling square number or rolling a multiple of 3 on a fair 6 sided dice | Multiple of 3 =3,6,9.. so 2/6  Square number = 1,4,9.. so 2/6  Equal chance |
| 8 | Represent 502 as a product of prime factors | 2x2x5x5x5x5 or 22x54 |
| 9 | There are 36 cans of soup on a crate. A supermarket has a delivery of 92 crates for £1250.10 and sells a can for 43p. How much profit does the supermarket make on the delivery? | 0.43x92x36=1424.16  1424.16-1250.10=174.06 |
| 10 | Rewrite the following scale as a ratio, as simply as possible;  1cm to 0.25m | 1:25 |
| Total out of 10 | |  |

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| --- | --- | --- |
| Q | Question | Answer |
| 1 | Round 12.39 to 3 significant figures | 12.4 |
| 2 | Solve  8k+-1=6k-5 | K=-2 |
| 3 | Alia buys a mountain bike. She pays a deposit of 10% of the cash price followed by 36 monthly payments of £12.50. In total she pays £495. What was the cash price of the bike? | 495 – (36x12.50) = 45  45 x 10 = £450 |
| 4 | Work out 115% of 240 | 276 |
| 5 | A supermarket sells shampoo in two sizes;  Bottle containing 400ml for £1.15 and a 550ml bottle for £1.60.  Which bottle is the best value? | 0.14375 per 50ml  0.14545… per 50ml  So 400ml bottle is better value |
| 6 | Calculate of 144 | 24 |
| 7 | Which is more likely; rolling a number greater than 5 or rolling a prime number on a fair 6 sided dice | Greater than 5= 6 so 1/6  Prime = 1,2,3,5 so 4/6  Prime number is more likely |
| 8 | Represent 842 as a product of prime factors | 2x2x2x2x3x3x7x7 or 24x32x72 |
| 9 | A first-class letter costs 55p to post and a second class letter costs 32p. What change will I receive after paying with £20 note for 12 first class and 19 second class letters? | 12x0.55+19x0.32=12.68  £7.32 change |
| 10 | Rewrite the following scale as a ratio, as simply as possible;  2cm to 5km | 2:500000  1:250000 |
| Total out of 10 | |  |