Four Operations

Short Division

Start from the left.

```
        4 4 0·5
12 | 5 ⁵2 ⁴8 6·⁶0
```

5 ÷ 12 = 0 r5
52 ÷ 12 = 4 r4
48 ÷ 12 = 4
6 ÷ 12 = 0 r6

Long Division

```
          1 2 0 r 3
14 | 1 6 8 3
     1 4 0 0
       2 8 3
       2 8 0
           3
```

Common Factors

Factors of 48

| 1 | 2 | 3 | 4 | 6 | 8 | 12 | 16 | 24 | 48 |

Factors of 30

| 1 | 2 | 3 | 5 | 6 | 10 | 15 | 30 |

Common factors: 1, 2, 3, 6

Primes

A prime number has only 1 and itself as factors: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 33, 37, 41, 43

A composite number has factors other than 1 and itself.

Mental Calculations and Estimation

Order of calculations:

$50 \times 34 \times 2 = 50 \times 2 \times 34 = 100 \times 34 = 3400$

Money: £8.99 + £3.49 = £12.48

Use £9 + £3.50 = £12.50 and subtract 2p

Estimate on a number line

```
-8      0       8      16  20  24
```

Subdivide line to estimate: **17**

Common Multiples

Multiples of 3

| 3 | ... | 18 | 21 | 24 | ... | 39 | 42 |

Multiples of 7

| 7 | 14 | 21 | 28 | 35 | 42 |

Common multiples: 21, 42...

Squares and Cubes

Square numbers result from a number being multiplied by itself (e.g. $5 \times 5 = 25$):

1, 4, 9, 16, 25, 36, 49, 64, 81, 100

Cube numbers result from a number being multiplied by itself twice ($2 \times 2 \times 2 = 8$):

1, 8, 27, 64, 125

Reason from Known Facts

$90 \div 10 = 9$ **so $90 \div 20 = 4.5$ and $90 \div 5 = 18$**

$16 \times 9 = 144$ **so $1.6 \times 9 = 14.4$**

$4352 \div 17 = 256$

so $256 \times 18 = 4352 + 256 = 4608$

$3786 + 2850 = 6636$

so $4786 + 2850 = 7636$

and $2786 + 3850 = 6636$

and $8636 - 3786 = 4850$