

Short Division

$$\begin{array}{r} 1706 \\ 2 \overline{) 3412} \end{array}$$

Step 1: 2 goes into 3, one time with a remainder of one.

Step 2: Put the remainder of one in front of the next number 4.
* Your new number is 14.

Step 3: 2 goes into 14, seven times; with no remainder.

Step 4: 2 goes into one, zero times with a remainder of one.
* put the remainder of one in front of the next number, 2, to make '2 (twelve).

Step 5: 2 goes into 12, six times.

Note: If you have a remainder after your last number, put the remainder in a numerator and the divisor in the denominator (see examples)

2 | 1 2 3 4 5 6 7 8 9

3 | 1 2 3 4 5 6 7 8 9

4 | 1 2 3 4 5 6 7 8 9

5 | 1 2 3 4 5 6 7 8 9

6 | 1 2 3 4 5 6 7 8 9

7 | 1 2 3 4 5 6 7 8 9

8 | 1 2 3 4 5 6 7 8 9

0 6 1 7 2 8 3 9 4 $\frac{1}{2}$

$$\begin{array}{r} 2 \overline{) 1' 2 3' 4 5' 6 7' 8 9} \\ \underline{4 1 1 5 2 2 6 3} \end{array}$$

$$\begin{array}{r} 3 \overline{) 1 2 3 4' 5 6 7' 8 9} \\ \underline{3 0 8 6 4 1 9 7} \frac{1}{4} \end{array}$$

$$\begin{array}{r} 4 \overline{) 1 2 3^3 4^2 5' 6 7^3 8^2 9} \\ \underline{2 4 6 9 1 3 5 7} \frac{4}{5} \end{array}$$

$$\begin{array}{r} 5 \overline{) 1 2^2 3^3 4^4 5 6' 7 8^3 9} \\ \underline{2 0 5 7 6 1 3 1} \frac{1}{2} \end{array}$$

$$\begin{array}{r} 6 \overline{) 1 2 3^3 4^4 5^3 6 7' 8 9} \\ \underline{1 7 6 3 6 6 8 4} \frac{1}{7} \end{array}$$

$$\begin{array}{r} 7 \overline{) 1 2^5 3^4 4^2 5^4 6^4 7^5 8^2 9} \\ \underline{1 5 4 3 2 0 9 8} \frac{5}{8} \end{array}$$

$$\begin{array}{r} 8 \overline{) 1 2^4 3^3 4^2 5' 6 7^7 8^6 9} \end{array}$$

$$2 \overline{) 987654321}$$

$$3 \overline{) 987654321}$$

$$4 \overline{) 987654321}$$

$$5 \overline{) 987654321}$$

$$6 \overline{) 987654321}$$

$$7 \overline{) 987654321}$$

$$8 \overline{) 987654321}$$

$$9 \overline{) 987654321}$$

$$10 \overline{) 987654321}$$

$$11 \overline{) 987654321}$$

$$12 \overline{) 987654321}$$

$$13 \overline{) 987654321}$$

$$\begin{array}{r}
493,827,160\frac{1}{2} \\
2 \overline{) 987654321} \\
329,218,107 \\
3 \overline{) 987654321} \\
246,913,580\frac{1}{4} \\
4 \overline{) 987654321} \\
197,530,864\frac{1}{5} \\
5 \overline{) 987654321} \\
164,609,053\frac{1}{2} \\
6 \overline{) 987654321} \\
141,093,474\frac{3}{7} \\
7 \overline{) 987654321} \\
123,456,790\frac{1}{8} \\
8 \overline{) 987654321} \\
109,739,369 \\
9 \overline{) 987654321} \\
098,765,432\frac{1}{10} \\
10 \overline{) 987654321} \\
089,786,756\frac{5}{11} \\
11 \overline{) 987654321} \\
082,304,526\frac{3}{7} \\
12 \overline{) 987654321} \\
075,973,409 \\
13 \overline{) 987654321}
\end{array}$$

always
simplify
fractions
 $\frac{3}{6} = \frac{1}{2}$

how many feet in:
 $\frac{1}{2}$ of a mile

$$2 \overline{) 5280}$$

$$3 \overline{) 5280} \quad \frac{1}{3} \text{ of a mile}$$

$$4 \overline{) 5280} \quad \frac{1}{4} \text{ of a mile}$$

$$5 \overline{) 5280} \quad \frac{1}{5} \text{ of a mile}$$

$$6 \overline{) 5280} \quad \frac{1}{6} \text{ of a mile}$$

$$7 \overline{) 5280} \quad \frac{1}{7} \text{ of a mile}$$

$$8 \overline{) 5280} \quad \frac{1}{8} \text{ of a mile}$$

$$9 \overline{) 5280} \quad \frac{1}{9} \text{ of a mile}$$

$$2 \overline{) \begin{array}{cccc} 2 & 6 & 4 & 0 \\ 5 & 2 & 8 & 0 \end{array}}$$

$$3 \overline{) \begin{array}{cccc} 1 & 7 & 6 & 0 \\ 5 & 2 & 8 & 0 \end{array}}$$

$$4 \overline{) \begin{array}{cccc} 1 & 3 & 2 & 0 \\ 5 & 2 & 8 & 0 \end{array}}$$

$$5 \overline{) \begin{array}{cccc} 1 & 2 & 5 & 6 \\ 5 & 2 & 8 & 0 \end{array}}$$

$$6 \overline{) \begin{array}{cccc} 0 & 8 & 8 & 0 \\ 5 & 2 & 8 & 0 \end{array}}$$

$$7 \overline{) \begin{array}{cccc} 0 & 7 & 5 & 4 \frac{2}{7} \\ 5 & 2 & 8 & 0 \end{array}}$$

$$8 \overline{) \begin{array}{cccc} 0 & 6 & 6 & 0 \\ 5 & 2 & 8 & 0 \end{array}}$$

$$9 \overline{) \begin{array}{cccc} 0 & 5 & 8 & 6 \frac{6}{9} = \frac{2}{3} \\ 5 & 2 & 8 & 0 \end{array}}$$

Mathletes continue to challenge themselves. Divide the following numbers by 2, 3, 4, 5, 6, 7, 8, 9, etc. (the key is to work on your speed trying to improve your time each attempt with a focus on accuracy):

- 525,600 -- the number of minutes in a year.
- 7,926 -- the number of miles in the diameter of the earth.
- 3,959 -- the number of miles in the radius of the earth.
- 24,901 -- the number of miles in the circumference of the earth (distance of the equator).
- 186,282 -- the number of miles per second of the speed of light.
- 670,616 -- the number of miles per hour of the speed of light.
- 602,214,150,000,000,000,000,000 -- the number of atoms in a gram mole of a chemical substance (Avogadro's Number 6.0221415×10^{23})