

Adding and Subtracting Whole and Decimal Numbers

Calculate each sum and use estimation to check to see if your answer is reasonable.

Example:

$$\begin{array}{r} \overset{1}{2} \\ 206 \rightarrow 200 \\ 349 \rightarrow 300 \\ 127 \rightarrow 100 \\ + 467 \rightarrow 500 \\ \hline 1149 \quad 1100 \end{array}$$

$$\begin{array}{r} \overset{1}{2} \\ 329 \rightarrow 300 \\ 462 \rightarrow 500 \\ 503 \rightarrow 500 \\ + 368 \rightarrow 400 \\ \hline 1662 \quad 1100 \\ \checkmark \quad \checkmark \end{array}$$

$$\begin{array}{r} \overset{1}{1} \\ 421 \rightarrow 400 \\ 230 \rightarrow 200 \\ 329 \rightarrow 300 \\ + 547 \rightarrow 500 \\ \hline 1527 \quad 1400 \\ \checkmark \quad \checkmark \end{array}$$

Calculate the difference of the numbers. Add up to check your answer.

Example:

$$\begin{array}{r} \overset{5}{17} \\ 36187 \checkmark \\ - 3829 \\ \hline 32358 \end{array}$$

$$\begin{array}{r} \overset{4}{11} \\ 5326 \checkmark \\ - 1417 \checkmark \\ \hline 3909 \end{array}$$

$$\begin{array}{r} \overset{299}{11} \\ 23000 \\ - 422 \\ \hline 22578 \checkmark \end{array}$$

$$\begin{array}{r} \overset{1}{1} \\ 32358 \\ + 3829 \\ \hline 36187 \checkmark \end{array}$$

$$\begin{array}{r} \overset{1}{1} \\ 3909 \\ + 1417 \\ \hline 5326 \checkmark \end{array}$$

$$\begin{array}{r} \overset{1}{1} \\ 22578 \\ + 422 \\ \hline 23000 \checkmark \end{array}$$

Estimation can be used to check the reasonableness of a subtraction question.

Example:

8702 - 6914

9000 - 7000 = 2000

∴ 8702 - 6914 should be about 2000.

23000 - 400 = 19000

Word Problems: Select one of the following questions to answer. Show all the steps in the solution.

# 1

- Rico's home town had a population of 75 692 people in 1990. In 2000, the population was 83 020 people. By how much did the population increase? Determine if your answer is reasonable using estimation.

OR

# 2

Balvinder sells chocolate bars to raise money for his school. From Monday to Friday, Balvinder sold \$676 worth of chocolate bars. On Monday he sold \$117, on Tuesday he sold \$130, on Wednesday he sold \$143, and on Friday he sold \$156. Calculate how much he sold on Thursday. Show your work.

TOTAL

+ -

#1 Solution

$$\begin{array}{r}
 \overset{7}{\cancel{8}} \overset{12}{\cancel{0}} \overset{9}{\cancel{1}} \overset{11}{\cancel{0}} \rightarrow 83\ 000 \\
 - \quad 75\ 692 \rightarrow -76\ 000 \\
 \hline
 \checkmark 7\ 328 \quad \quad \quad 7\ 000
 \end{array}$$

∴ The population increased by 7328 people between the years 1990 and 2000. That is about 700 people per year.

$$7000 \div 10 = \underline{700}$$

# 2

$$\begin{array}{r}
 \$117 \\
 \$130 \\
 \$143 \\
 + \$156 \\
 \hline
 \$546 \text{ in 4 days}
 \end{array}$$

$$\begin{array}{r}
 675 \div 5 \\
 \underline{135} \\
 5 \overline{)675} \\
 \underline{51} \\
 17 \\
 \underline{15} \\
 25 \\
 \underline{25} \\
 0
 \end{array}$$

$$\begin{array}{r}
 \$676 \\
 - \$546 \\
 \hline
 \$130 \rightarrow \text{Total sold Thursday}
 \end{array}$$

∴ Balvinder sold \$130 worth of chocolate on Thursday.

## MULTIPLICATION & DIVISION

Estimating Products - Round the numbers and calculate to estimate each product.

Example:

$$64 \times 36 = \rightarrow \underline{60} \times \underline{40} = \underline{2400}$$

$$122 \times 38 = \underline{120} \times \underline{40} = 4800 \checkmark$$

$100 \times 40 = 4000$

$$44 \times 1045 = \underline{40} \times \underline{1000} = 40\,000 \checkmark$$

$$78 \times 2196 = \underline{80} \times \underline{2000} = 160\,000 \checkmark$$

Example:

$$\begin{array}{r} 21 \\ \times 1.9 \\ \hline \end{array} \rightarrow \begin{array}{r} 20 \\ \times 2 \\ \hline 40 \end{array}$$

$$\underline{20} \times \underline{2} = 40$$

$$\begin{array}{r} 56 \\ \times 3.4 \\ \hline \end{array} \rightarrow \begin{array}{r} 60 \\ \times 3 \\ \hline 180 \checkmark \end{array}$$

$$\begin{array}{r} 43.8 \\ \times 72.0 \\ \hline 88 \\ +3080 \\ \hline 3168 \end{array}$$

OR

$$\begin{array}{r} 40 \\ \times 70 \\ \hline 2800 \end{array}$$

### Multiplying Decimal Numbers by 10, 100, 1000, 10 000

Use mental math to find each product.

Examples:

$6.5 \times 10 = 65$

$6.5 \times 100 = 650$

$6.5 \times 1000 = 6500$

$6.5 \times 10\,000 = 65\,000$

$1.9 \times 10 = \underline{19}$

$6.73 \times 100 = \underline{673}$

$9.365 \times 10\,000 = \underline{93\,650}$

$2.6 \times 100 = \underline{260}$

$7.2 \times 1000 = \underline{7\,200}$

$0.486 \times 1000 = \underline{486}$

$2.63 \times 10 = \underline{26.3}$

$1.123 \times 10\,000 = \underline{11\,230}$

### Dividing Decimal Numbers by 10, 100, 1000, 10 000

Use mental math to find each quotient.

Examples:

$8.2 \div 10 = 0.82$

$8.2 \div 100 = 0.082$

$8.2 \div 1000 = 0.0082$

$8.2 \div 10\,000 = 0.00082$

$3.4 \div 10 = \underline{0.34}$

$1.63 \div 100 = \underline{0.0163}$

$0.5 \div 100 = \underline{0.005}$

$8 \div 10\,000 = \underline{0.0008}$

$9.6 \div 1000 = \underline{0.0096}$

$6.382 \div 10 = \underline{0.6382}$

### Multiplying Whole Numbers by 0.1, 0.01, 0.001

Use mental math to find each product.

Examples:

$74 \times 0.1 = 7.4$

$74 \times 0.01 = 0.74$

$74 \times 0.001 = 0.074$

←

74

0.074

$14 \times 0.1 = \underline{1.4}$

$519 \times 0.001 = \underline{0.519}$

$6 \times 0.01 = \underline{0.06}$

74

7.4



## Adding and Subtracting Decimal Numbers

Remember to line up your decimals when adding and subtracting decimal numbers.

Rewrite each question and solve.

Examples:  $0.56 + 0.98$

$$\begin{array}{r} 0.56 \\ + 0.98 \\ \hline 1.54 \end{array}$$

$9.05 - 6.208$

$$\begin{array}{r} 9.050 \\ - 6.208 \\ \hline 2.842 \end{array}$$

$2.804 + 0.426$

$$\begin{array}{r} 2.804 \\ + 0.426 \\ \hline 3.230 \end{array}$$

$4.675 + 3.899 + 0.269$

$$\begin{array}{r} 4.675 \\ 3.899 \\ + 0.269 \\ \hline 8.843 \end{array}$$

$8.21 - 3.63$

$$\begin{array}{r} 8.21 \\ - 3.63 \\ \hline 4.58 \end{array}$$

$3.8 - 0.058$

$$\begin{array}{r} 3.800 \\ - 0.058 \\ \hline 3.742 \end{array}$$

Bennett hiked on three different trails last weekend. The first trail measures 2.863 km and the second trail measures 5.501 km. If Bennett hiked a total of 10 km, what was the distance of the third trail he hiked?

Show all the steps of your solution.

$$\begin{array}{r} \text{Trail 1} - 2.863 \\ + \text{Trail 2} + 5.501 \\ \hline 8.364 \text{ km} \end{array}$$

$$\begin{array}{r} \text{Total Distance} - 10.000 \text{ km} \\ \text{Distance of 1 \& 2} - 8.364 \text{ km} \\ \hline 1.636 \text{ km} \end{array}$$

∴ The third trail was 1.636 km

# Problem Solving

1.

$$\begin{array}{r} 9.075 \text{ kg} \\ \times 5 \\ \hline 45.375 \text{ kg} \end{array}$$

∴ The combined mass of 5 seeds is 45.375 kg.

$$\begin{array}{r} 0.385 \text{ L} \\ \times 4 \\ \hline 1.540 \text{ L} \end{array}$$

∴ He would have enough evaporated milk to make his recipe.

Bump it up!

$$\begin{array}{r} 1.54 \\ - 1.50 \\ \hline 0.04 \text{ L} \end{array}$$

He would have 0.04L of evaporated milk left over.

$$18.892 \div 4$$

3.

$$\begin{array}{r} 1.195 \text{ g} \\ 2.240 \text{ g} \\ 5.249 \text{ g} \\ + 10.208 \text{ g} \\ \hline 18.892 \text{ g} \end{array}$$

$$\begin{array}{r} 4.723 \text{ g} \\ 4 \overline{) 18.892} \\ \underline{- 16} \phantom{00} \\ 28 \\ \underline{- 28} \\ 09 \\ \phantom{0}8 \end{array}$$

Total weight of 4 bags of coffee 12

∴ The mean weight is 4.723g

$$\begin{array}{r} 12 \\ \underline{12} \\ 0 \text{ R} \end{array}$$