WelTec Mathematics Series

General Mathematics - Addition

All trades based jobs will require you to use addition to a certain extent. Additionally, you will probably need to be able to subtract, multiply and divide fairly accurately to make sure you're able to do what work you need to do as well.

In order to be able to add well, you'll need to understand the place value of the digits that make up a number. This has been covered in another handout.

Addition

The result of adding numbers is called the **sum**. The **plus sign** (+) tells you have to add.

Numbers can be added in any order, as the sum will be the same no matter which number will be added first. For example, 5 + 3 = 3 + 5. This called the **commutative** property of addition.

Numbers can also be grouped in any way, and the sum will be the same. This is called the **associative** property of addition. For example, (2 + 4) + 3 = 2 + (4 + 3). The sum is 9 in both cases.

Example 1

Add 345 + 613.

Solution

In expanded form the addition would look like this:

Expanded Form	Short Form
3 hundreds + 4 tens + 5 ones	345
6 hundreds + 1 ten + 3 ones	+613
9 hundreds + 5 tens + 8 ones	958

Add hundreds | Add tens | Add ones

In the short form, write the numbers to be added under each other. Put the units digit under the units digit, the tens under the tens digit and the hundreds under the hundreds digit. Add each column of numbers starting on the right. If the sum of any column is ten or more, carry the number to the next column.

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Question 1

Estimate each of the following sums to the indicated place value.

a) 33 + 88 (nearest ten)
b) 953 + 38 (nearest ten)
c) 53 + 12 + 951 (nearest ten)
d) 896 + 675 + 33 (nearest hundred)
e) 73 + 1370 + 542 (nearest hundred)
f) 3653 + 8063 + 47 (nearest thousand)
g) 9734 + 10,505 + 91,613 (nearest thousand)
h) 15,973 + 829 + 7515 (nearest thousand)
i) 17,392 + 2085 + 1670 + 13 (nearest thousand)

Answers

a) 30 + 90 = 120
b) 950 + 40 = 990
c) 50 + 10 + 950 = 1010
d) 900 + 700 + 0 = 1600
e) 100 + 1,400 + 500 = 2,000
f) 4,000 + 8,000 + 0 = 12,000
g) 10,000 + 11,000 + 92,000 =113,000
h) 16,000 + 1,000 + 2,000 + 0 = 19,000
i) 17,000 + 2,000 + 2,000 + 0 = 21,000

Question 2

Add the following numbers. Check your answers with your estimates in question 1 for parts a to f.

a) 33 + 88
b) 953 + 38
c) 53 + 12 + 951
d) 896 + 675 + 33
e) 73 + 1370 + 542
f) 3,653 + 8,063 + 47
g) 6,737 +3,519 + 8,180
h) 9,734 + 10,505 + 91,613
i) 15,973 + 829 + 7,515
j) 17,392 + 2,085 + 132,997 + 8
k) 18,768 + 3,023 + 7,787,030 + 544

Answers

a) 121
b) 991
c) 1,016
d) 1,604
e) 1,985
f) 11,763
g) 18,436
h) 111,852
i) 24,317
j) 152,482
k) 7,809,365

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Adding Whole Numbers in Practical Applications

Example 2

The production schedule for a manufacturing plant completes parts for a series of machines each week. The number of parts manufactured during the first 5 weeks of production are 382, 417, 485, 508 and 512. How many parts have been manufactured during the first 5 weeks?

Solution 2

Work out what to do

The number of parts for 5 weeks is the total of the number made each week.

Estimate the answer

400 + 400 + 500 + 500 +500 = 2300

Work out the answer

382 + 417 + 485 + 508 + 512 = 2304

Check the answer with the estimate

2304 is about the same as 2300

Question 3

The production schedule for a manufacturing plant completes parts for a series of machines each week. The number of parts manufactured during the first 5 weeks of production are 363, 317, 425, 539 and 412. How many parts have been manufactured during the first 5 weeks?

Answers

Work out what to do

Add up the number of parts completed

Estimate the answer

400 + 300 + 400 + 500 + 400 = 2,000

Work out the answer

363 + 317 + 425 + 539 + 412 = 2,056

Check the answer with the estimate

2,056 is about the same a 2,000

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Question 4

Five stamping machines in a manufacturing plant produce the same product. Each machine has a counter that records the number of parts produced. The table below shows the counter readings for the beginning and the end of one week's production, and the number of parts produced by each machine.

	Machine 1	Machine 2	Machine 3	Machine 4	Machine 5
Counter reading beginning of the week	17,855	13,935	7,536	38,935	676
Counter reading end of the week	48,951	42,007	37,881	72,302	29,275
Number of parts made by machine	31,096	28,072	30,345	33,367	28,599

a) What is the total weekly production?

b) In the second week Machine 1 produces 2,000 more parts than week 1. Machine 2 produces another 2,300 more parts than week 1. Machine 3 produces 1,356 more parts. Machine 4 produces 1,560 more parts and Machine 5 produces 2,780 more parts.

i) How many parts does each machine produce?

ii) What is the total weekly production for the second week?

Answers

a) 151,79

b) i)

Machine 1 33,096

Machine 2 30,372

Machine 3 31,701

Machine 4 34,927

Machine 5 31,379

ii)

161,475 parts

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Question 5

On a particular job, the contractor's expenses were $794 for materials, $537 in carpenter labour, and $486 for taxes and insurance. The contractor is paid $1974.

a) What was the contractor's total expenses?
b) If the profit is the difference between the amount paid and the expenses, what was the profit on this job?

Answers
a) Total Expenses = $1,818
b) 1,974 – 1,818 = $156

Question 6

At the beginning of the week, an electrical supply house has 853 solenoids in stock. During the week, the following number of solenoids were sold: Monday: 57; Tuesday: 73; Wednesday: 64; Thursday: 49 and Friday: 62.

a) Round off the number of solenoids sold to the nearest ten and add to find out the approximate number of solenoids sold during the week.
b) Round off the number of solenoids in stock at the beginning of the week to the nearest ten. Use this number and your answer to approximate the number of solenoids in stock at the end of the week.
c) Find the actual number of solenoids in stock at the end of the week.

Answers
a) Total Solenoids = 60 + 70 + 60 + 50 60 = 300
b) Solenoids in Stock = Solenoids in Stock – Solenoids Sold
= 900 -300
= 600
c) Actual Solenoids in Stock = 853 – 305 = 548

Question 7

The table below lists various kinds of flour ordered and received by a commercial baker in pounds (lbs).

	Bread Flour	Cake Flour	Rye Flour	Rice Flour	Potato Flour	Soybean Flour
Ordered	3875 lb	2000 lb	825 lb	180 lb	210 lb	85 lb
Received	3650 lb	2670 lb	910 lb	75 lb	165 lb	85 lb

a) Is the total amount of flour received greater or less than the total amount ordered?
b) How many pounds greater or less?

Answers
a) Total Ordered = 7,175 lbs.
Total Received = 7,555 lbs.
b) 7,555 – 7175 = 380 lbs

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