

Addition and Subtraction of Decimals

WORKSHEETS

Mathletics

love learning.

Adding and subtracting decimals

When we add and subtract decimals we follow the same rules we use when working with whole numbers. We need to make sure we line up the place values and the decimal points:

	H	T	O
	3	1	3
-	1	7	2
	2	6	1

1 Estimate and solve these addition problems. Remember to put the decimal point into your answers:

e:

a	T	O	T
	5	4	1
+	3	1	3

e:

b	T	O	T
	3	2	3
+	5	8	1

e:

c	T	O	T
	4	8	4
+	4	1	3

e:

d	T	O	T
	2	7	8
+	3	9	3

e:

e	T	O	T	H
	5	2	1	7
+	3	5	9	2

e:

f	T	O	T	H
	4	5	1	
+	1	4	0	5

e:

g	T	O	T	H
	5	3	8	9
+	1	2	1	4

e:

h	T	O	T	H
	3	2	4	1
+	1	9	3	3

2 Estimate and solve these subtraction problems. Remember to put the decimal point into your answers:

e:

a	T	O	T
	8	4	3
-	3	2	3

e:

b	T	O	T
	9	0	8
-	5	3	2

e:

c	T	O	T
	7	6	3
-	2	0	4

e:

d	T	O	T
	9	7	
-	3	2	3

3 Bart finished his race in a time of 10.67 sec. Lisa finished in 11.24 sec. How much faster was Bart?

Adding and subtracting decimals

- 4 You bought the following. Find the difference between the discount price and regular price for each item, then calculate your total savings. Show all your work:

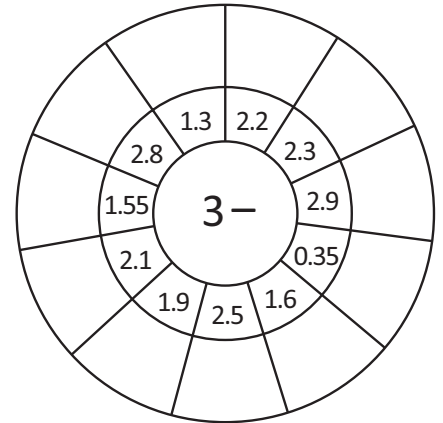
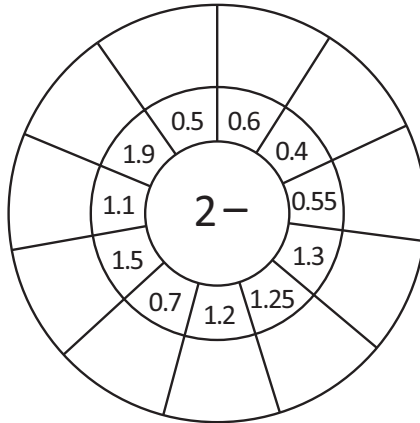
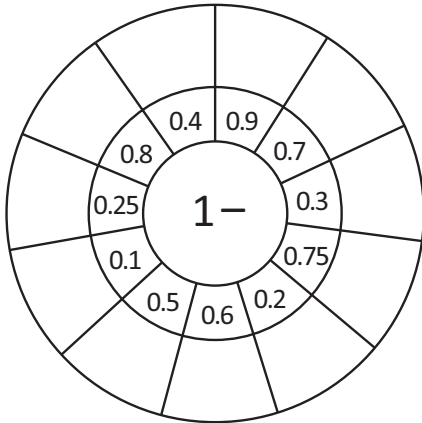
The image contains six price tags, each with a 'Was' price, a 'Now' price, and a 'Save \$' field with a blank line for the answer. The tags are connected by a string.

- Tag 1: Was \$9.99, Now \$8.50, Save \$ _____
- Tag 2: Was \$8.50, Now \$7.99, Save \$ _____
- Tag 3: Was \$7.35, Now \$6.85, Save \$ _____
- Tag 4: Was \$8.95, Now \$6.50, Save \$ _____
- Tag 5: Was \$2.89, Now \$1.65, Save \$ _____
- Tag 6: Was \$4.66, Now \$3.89, Save \$ _____

Total savings: _____

Adding and subtracting decimals

5 Practice your subtraction of decimals with these wheels:



6 Solve these money problems using a strategy of choice:

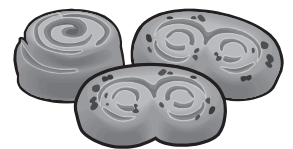
a You have \$98.00. The total of the groceries is \$67.00. How much change will you get after you pay for your groceries?



b How much will you save if you buy an item on sale that was \$76.95 and is now \$68.99?

c Hugo's total grocery bill before subtracting his coupons was \$77.84. If he had \$5.87 in coupons, what was his final bill?

d Your mom gives you \$10.00 to go to the bakery to buy pastries. You buy 3 items at the bakery for a total cost of \$8.25. You have a discount coupon worth \$1.05. How much change will you get back?



Adding and subtracting decimals

When we add and subtract decimals, we follow the same rules we use when working with whole numbers. We need to make sure we line up the place values and the decimal point.

$$\begin{array}{r}
 \overset{3}{4} \quad \overset{1}{1} \quad \overset{1}{2} \quad \overset{1}{6} \\
 - \quad 1 \quad 8 \quad \cdot \quad 1 \quad 7 \\
 \hline
 2 \quad 3 \quad \cdot \quad 0 \quad 9
 \end{array}$$

1 Estimate and solve these addition problems. Remember to put the decimal point into your answers.

e:

$$\begin{array}{r}
 6 \quad 4 \quad \cdot \quad 1 \quad 6 \\
 + \quad 1 \quad 7 \quad \cdot \quad 1 \quad 7 \\
 \hline
 \\
 \hline
 \end{array}$$

e:

$$\begin{array}{r}
 8 \quad 4 \quad \cdot \quad 9 \quad 6 \\
 + \quad 1 \quad 2 \quad \cdot \quad 3 \quad 9 \\
 \hline
 \\
 \hline
 \end{array}$$

e:

$$\begin{array}{r}
 9 \quad 8 \quad \cdot \quad 6 \quad 2 \\
 + \quad 1 \quad 9 \quad \cdot \quad 3 \quad 8 \\
 \hline
 \\
 \hline
 \end{array}$$

e:

$$\begin{array}{r}
 3 \quad 1 \quad \cdot \quad 6 \quad 6 \\
 + \quad 1 \quad 7 \quad \cdot \quad 6 \quad 9 \\
 \hline
 \\
 \hline
 \end{array}$$

2 Estimate and solve these subtraction problems. Remember to put the decimal point into your answers.

e:

$$\begin{array}{r}
 8 \quad \cdot \quad 4 \quad 6 \\
 - \quad 4 \quad \cdot \quad 2 \quad 7 \\
 \hline
 \\
 \hline
 \end{array}$$

e:

$$\begin{array}{r}
 9 \quad \cdot \quad 1 \quad 8 \\
 - \quad 7 \quad \cdot \quad 3 \quad 6 \\
 \hline
 \\
 \hline
 \end{array}$$

e:

$$\begin{array}{r}
 9 \quad \cdot \quad 1 \quad 1 \\
 - \quad 8 \quad \cdot \quad 0 \quad 2 \\
 \hline
 \\
 \hline
 \end{array}$$

e:

$$\begin{array}{r}
 9 \quad \cdot \quad 8 \quad 8 \\
 - \quad 7 \quad \cdot \quad 9 \quad 3 \\
 \hline
 \\
 \hline
 \end{array}$$

e:

$$\begin{array}{r}
 6 \quad \cdot \quad 6 \quad 9 \\
 - \quad 3 \quad \cdot \quad 9 \quad 9 \\
 \hline
 \\
 \hline
 \end{array}$$

e:

$$\begin{array}{r}
 8 \quad \cdot \quad 1 \quad 1 \\
 - \quad 7 \quad \cdot \quad 3 \quad 2 \\
 \hline
 \\
 \hline
 \end{array}$$

3 Abdul bought three magazines for \$6.25, \$3.25, and \$4.95. How much did he spend altogether?

Mental strategies – split strategy with decimals

Sometimes it is easier to split both numbers. Look at how we do this with $21.2 + 3.8$

- 1 We split the numbers into whole numbers and decimals.
- 2 We then rearrange the problem, adding the whole numbers and decimals separately.
- 3 We add the 2 answers.

$$\begin{array}{l}
 \begin{array}{c} \textcircled{21} \textcircled{.} \textcircled{2} + \textcircled{3} \textcircled{.} \textcircled{8} \\ \text{+} \end{array} = (21 + 3) + (0.2 + 0.8) \\
 = 24 + 1 \\
 = 25
 \end{array}$$

- 1 When adding decimals, it is helpful if you are able to quickly identify pairs that add together to give a whole number. In each grid below, look for 4 pairs that add to give a whole number and color in the squares. Pairs are next to each other vertically, horizontally, or diagonally.

a

1.7	1.5	3.8	3.1
1.3	1.2	3.2	3.6
6.3	6.4	5.1	5.5
6.2	6.6	5.6	2.5

b

1.4	0.3	0.7	0.9
2.4	2.6	1.2	3.2
1.5	1.7	3.5	1.5
1.6	1.2	1.8	1.1

c

1.6	1.1	2.3	1.5
1.2	1.4	1.5	2.7
1.7	2.5	2.9	3.3
2.1	1.8	3.2	3.5

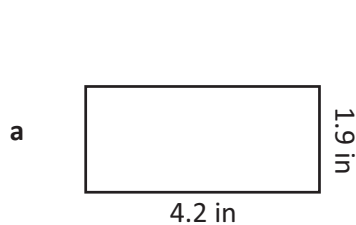
- 2 Solve these problems using the split strategy. Make notes as you go:

a $32.3 + 2.3 =$

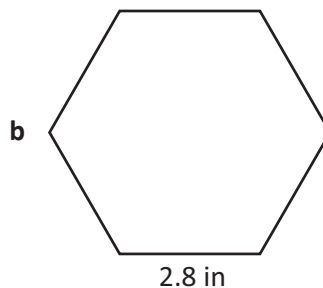
b $21.7 + 3.8 =$

c $46.2 + 7.1 =$

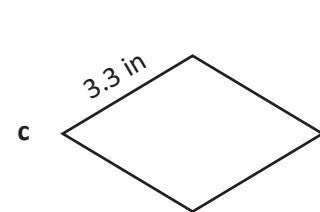
- 3 Find the perimeter of each shape. Shapes are not drawn to scale. Use the split strategy to help you:



P:



P:



P:

Mental strategies – split strategy with decimals

We can use the same process to subtract decimals:

- 1 We split the numbers into whole numbers and decimals.
- 2 We then rearrange the problem, subtracting the whole numbers and decimals separately.
- 3 We add the 2 answers.

$$\begin{array}{r} \textcircled{31}.\textcircled{4} - \textcircled{2}.\textcircled{3} = (31 - 2) + (0.4 - 0.3) \\ = 29 + 0.1 \\ = 29.1 \end{array}$$

4 Solve these problems using the split strategy. Make notes as you go:

a $46.8 - 9.3 =$

b $55.8 - 4.2 =$

c $33.2 + 13.1 =$

5 Use the split strategy to solve these money problems:

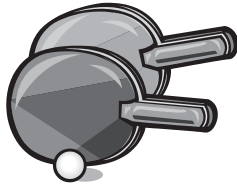
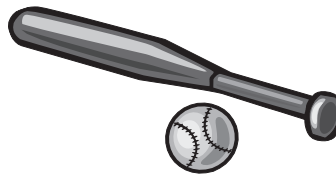


Table tennis \$28.60



Baseball \$42.15



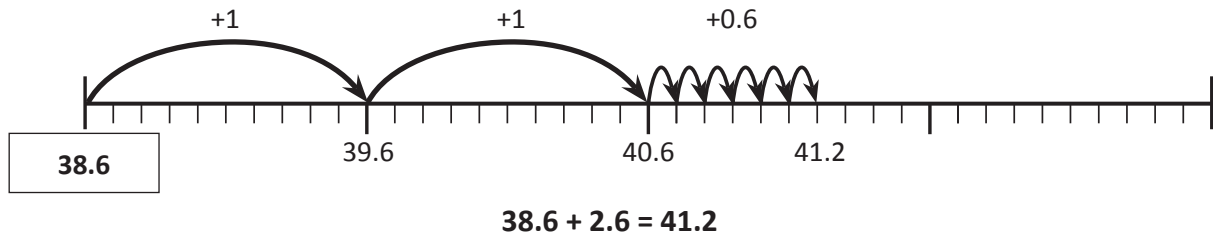
Boxing \$135.95

- a The table tennis set costs \$34.90 at the store down the road. If Gillian buys it here for \$28.60, how much does she save?
- b Sanjay saved \$55.50 to buy the baseball set. How much of his savings remain after buying the set?
- c If she had a coupon for a \$8.75 discount, how much did Katya pay for the boxing gloves?

Mental strategies – jump strategy with decimals

The jump strategy is also useful when adding decimals. Look at how we do this with $38.6 + 2.6$:

- 1 First we jump up by the whole numbers.
- 2 Then we jump up by the tenths.



1 Use the jump strategy to add the decimals:

a $35.4 + 3.1$

..... + =



b $84.3 + 1.8$

..... + =



c $17.6 + 1.9$

..... + =

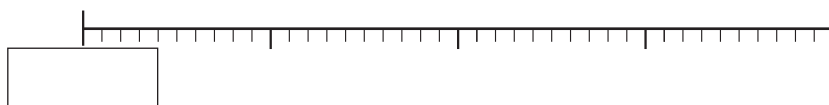


2 Use the jump strategy to answer the following:

- a You win a spitball competition, beating your nearest competitor, Spitball Steve, by 1.6 ft. Your mother would be so proud. If Spitball Steve spat 4.4 ft, how far did you shoot?



- b After weeks of practice, Spitball Steve perfects his technique and beats your previous winning shot by 1.1 ft. How far does he spit?



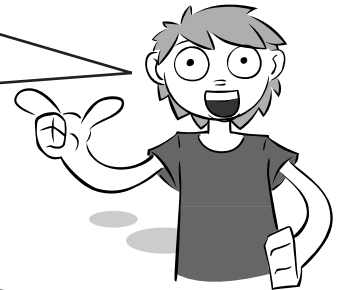
Mental strategies – jump strategy with decimals

We can also subtract decimals using the jump strategy.

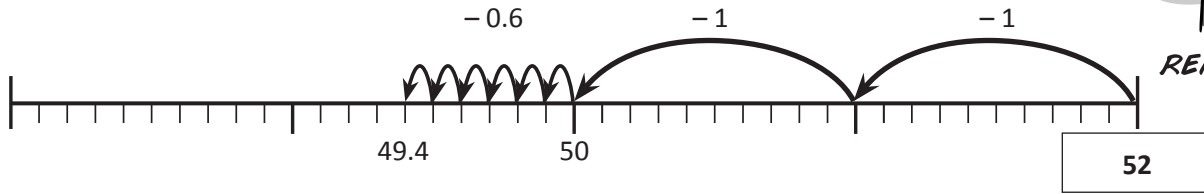
Look at how we do this with $52 - 2.6$

- 1 First we jump back by the whole numbers.
- 2 Then we jump back by the tenths.

Remember that 2.6 is made up of 2 and 0.6. You need to subtract both parts.



REMEMBER



3 Use the jump strategy to subtract these decimals. Break up the second number in your head:

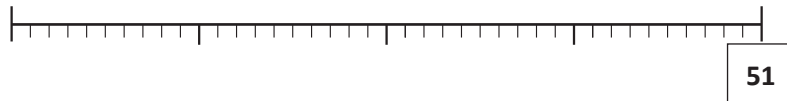
a $36 - 3.3$

..... - =



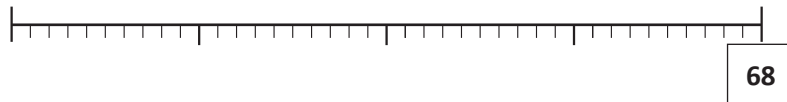
b $51 - 2.9$

..... - =

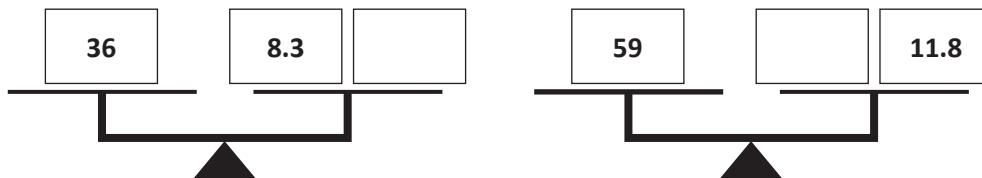


c $68 - 3.9$

..... - =



4 Work out what the missing number is on each set of balanced scales. Use the jump strategy.



I use subtraction to find the missing numbers. $36 - 8.3 = ?$



Mental strategies – compensation strategy with decimals

Follow these steps for the compensation strategy when adding decimals:

1 Round the number closest to a whole number.

2 Compensate for rounding:

$$\begin{aligned}
 31.4 + 5.8 &\rightarrow 31.4 + 6 && \text{I rounded up by } 0.2, \\
 &= 37.4 - 0.2 && \text{which means I} \\
 &= 37.2 && \text{added extra, so I} \\
 &&& \text{need to subtract } 0.2.
 \end{aligned}$$

$$\begin{aligned}
 51.4 + 8.3 &\rightarrow 51.4 + 8 && \text{I rounded down by } 0.3, \\
 &= 59.4 + 0.3 && \text{which means I did not} \\
 &= 59.7 && \text{add enough, so I need} \\
 &&& \text{to add } 0.3.
 \end{aligned}$$

1 Use the steps of these compensation strategies to add these decimals:

a $9.5 + 2.8 = \boxed{}$

$9.5 + 3 \quad \bigcirc$

$\underline{} \quad \bigcirc = \underline{}$

b $6.4 + 3.1 = \boxed{}$

$6.4 + 3 \quad \bigcirc$

$\underline{} \quad \bigcirc = \underline{}$

c $8.3 + 1.8 = \boxed{}$

$8.3 + 2 \quad \bigcirc$

$\underline{} \quad \bigcirc = \underline{}$

d $2.4 + 0.9 = \boxed{}$

$2.4 + 1 \quad \bigcirc$

$\underline{} \quad \bigcirc = \underline{}$

Follow these steps for the compensation strategy when subtracting decimals:

1 Round the number closest to the whole number.

2 Compensate for rounding:

$$\begin{aligned}
 52.5 - 3.9 &\rightarrow 52.5 - 4 && \text{We rounded up by } 0.1, \\
 &= 48.5 + 0.1 && \text{which means we} \\
 &= 48.6 && \text{subtracted extra, so} \\
 &&& \text{we need to add } 0.1.
 \end{aligned}$$

$$\begin{aligned}
 65.4 - 8.3 &\rightarrow 65.4 - 8 && \text{We rounded down by } 0.3, \\
 &= 57.4 - 0.3 && \text{which means we did not} \\
 &= 57.1 && \text{subtract enough, so} \\
 &&& \text{we need to subtract } 0.3.
 \end{aligned}$$

2 Use the steps of these compensation strategies to subtract the decimals:

a $5.3 - 3.8 = \boxed{}$

$5.3 - 4 \quad \bigcirc$

$\underline{} \quad \bigcirc = \underline{}$

b $7.2 - 2.9 = \boxed{}$

$7.2 - 3 \quad \bigcirc$

$\underline{} \quad \bigcirc = \underline{}$

c $68.3 - 1.8 = \boxed{}$

$68.3 - 2 \quad \bigcirc$

$\underline{} \quad \bigcirc = \underline{}$

d $32.5 - 9.8 = \boxed{}$

$32.5 - 10 \quad \bigcirc$


$\underline{} \quad \bigcirc = \underline{}$

Written methods – adding and subtracting decimals

4 Calculate the totals of these bills:

Café Uno

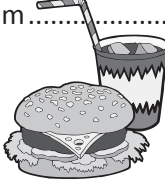
Mochaccino	\$	3 • 2 5
Grilled ham and cheese	\$	7 • 5 0
Choc chip cookie	\$	2 • 7 5



	\$

Bill's Burgers

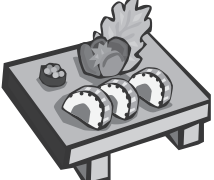
Drinks	\$	2 • 5 0
Double cheese burger	\$	7 • 0 0
Fries	\$	3 • 7 5
Ice cream	\$	3 • 6 0



	\$

Sushi Heaven

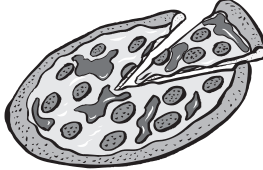
Teriyaki chicken	\$	4 • 6 0
Avocado and salmon	\$	5 • 1 5
Cucumber and tuna	\$	4 • 2 5



	\$

Pete's Pizza

Hawaiian pizza	\$	9 • 2 5
Vegetarian pizza	\$	8 • 7 5
Margarita pizza	\$	8 • 5 0



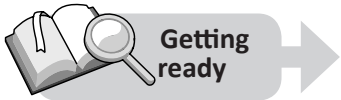
	\$

5 Use the bills to find the answers to the following:

- a Which was cheaper, eating at Bill's Burgers or Pete's Pizza? By how much?

- b If you ate at Café Uno, Sushi Heaven, and Pete's Pizza all in one week, how much would you spend on eating out?

- c Which restaurant bill was the cheapest and which was the most expensive? What is the difference in price?



Use Mrs. Lee's bank statement below to answer the questions at the bottom of the page.



Nest Egg Bank of the United States

Bank Statement

Mrs. Lilly Lee
345 Bay Street
San Francisco, CA 94133

Statement begins 30 October 2014
Statement ends 15 November 2014
Account Number 06 234 268 389 0975

Date	Transaction	Withdrawals	Deposits	Balance
30 Oct 2014	Opening Balance			3,596.84
01 Nov 2014	Salary/Pay		1,546.97	5,143.81
05 Nov 2014	Groceries	123.98		5,019.83
05 Nov 2014	Gasoline	67.45		
06 Nov 2014	New Clothing	125.40		
08 Nov 2014	Rent	845.00		
10 Nov 2014	Deposit		345.78	
11 Nov 2014	Account Fee	5.00		
13 Nov 2014	Electricity Bill	674.65		
15 Nov 2014	Salary/Pay		1,546.97	
	Opening Balance	Total Debits	Total Credits	Closing Balance
	\$3,596.84			



Use a calculator to complete the following:

- a Fill in the total debits by adding all the withdrawals.
- b Fill in the total credits by adding the deposits.
- c Did Mrs. Lee deposit or withdraw more money? _____
What was the difference? _____
- d Complete the balance column by adding each deposit and subtracting each withdrawal. What was Mrs. Lee's closing balance?
- e Mrs. Lee is paid twice a month. What is her monthly pay? _____
- f How much did Mrs. Lee pay altogether for her rent and electricity bill? _____