

Add or Subtract Decimals

$$\begin{array}{r}
 4.3 \quad + \quad 14.7 \\
 \\
 \\
 \\
 \hline
 19.0
 \end{array}$$

To add or subtract decimals, follow these steps:

- > Write down the numbers, one under the other, with the decimal points lined up.
- > Put in zeros so the numbers have the same length
- > Then add or subtract, using column addition, remembering to put the decimal point in the answer lined up.



Ex) $1.789 + 1.3$

$$\begin{array}{r}
 1.789 \\
 + 1.300 \\
 \hline
 3.089
 \end{array}$$

Ex) $17.2 - 6.37$

Ex) $13.45 + 0.539$

$$\begin{array}{r}
 13.450 \\
 + 0.539 \\
 \hline
 13.989
 \end{array}$$

$$\begin{array}{r}
 17.20 \\
 - 6.37 \\
 \hline
 10.83
 \end{array}$$

Add or Subtract

↳ the decimal (•) lines up

a) $14.63 + 0.29$

$$\begin{array}{r} 14.\overset{\cdot}{6}3 \\ + 0.\overset{\cdot}{2}9 \\ \hline 14.\overset{\cdot}{9}2 \end{array}$$

b) $45.3 - 11.46$

$$\begin{array}{r} 4\overset{4}{5}.\overset{12}{\cancel{3}}\overset{10}{0} \\ - 11.\overset{\cdot}{4}6 \\ \hline 33.\overset{\cdot}{8}4 \end{array}$$

c) $18 + 7.2$

$$\begin{array}{r} 18. + 7.2 \\ 18.\overset{\cdot}{0} \\ + 7.\overset{\cdot}{2} \\ \hline 25.\overset{\cdot}{2} \end{array}$$

d) $11.6 - 5.06$

$$\begin{array}{r} 11.\overset{5}{\cancel{6}}\overset{10}{0} \\ - 5.\overset{\cdot}{0}6 \\ \hline 6.\overset{\cdot}{5}4 \end{array}$$

Rounding

- Identify the place you are rounding to, and place a box around it.
- Check the digit to the right. Apply basic rounding rules (5 or greater increase by 1, 4 or less stays the same)
- Keep everything before the box the same. Everything after the box becomes zero

Ex) Round $\boxed{4}.709$ to the ones place

≈ 5 round up
ones
↓
tenths

Ex) Round $14.\boxed{3}64$ to the tenths place

14.4

| hundred
| tens
| ones ●
| tenths
| hundredths
| thousandths
| ten thousandths

Estimating the Nearest Whole Number

- Most of the time, you will be asked to round to the nearest whole number.
- Round to the ones place, and drop the decimal part of your number.

Rounding Rules

- 5 or Bigger (as a neighbor)
↳ you round UP

- Small than 5 Keep same

Ex) Round to the hundredths

a) 14.867
 ↓
 14.87

b) 0.562 .
 ↓
 0.56

c) 15.931
 ↓
 15.93

d) 16.896
 ↓
 16.90

Round to the tenths

e) 7.46

f) 10.98



Shrek 2 was the highest-earning movie of 2004.

Estimate the earning for the first 2 days: (Use rounding rules)

$$\begin{array}{r} 11.786 \rightarrow 12 \\ 9.159 \rightarrow 9 \\ \hline 21 \end{array}$$

Actual Earnings for first 2 days:

$$\begin{array}{r} 11.786 \\ + 9.159 \\ \hline 20.945 \end{array}$$

Saturday and Sunday Estimate

$$\begin{array}{r} 45 \\ + 35 \\ \hline 80 \end{array}$$

All seven day Estimate

Date	Earnings (US\$ Millions)
Wed. May 19	11.786
Thurs. May 20	9.159
Fri. May 21	28.340
Sat. May 22	44.797
Sun. May 23	34.901
Mon. May 24	11.512
Tues. May 25	8.023

Actual

$$\begin{array}{r} 44.797 \\ + 34.901 \\ \hline 79.698 \end{array}$$

Actual

Discuss pages 96,97 with the students

Explore

- First 2 days

Estimate

$$\approx \begin{array}{r} 11.8 + 9 \\ 20.8 \end{array}$$

$$\approx \begin{array}{r} 12 + 9 \\ 21 \end{array}$$

Actual

$$\begin{array}{r} 11.786 \\ + 9.159 \\ \hline 20.945 \end{array}$$

Saturday and Sunday

Estimate

$$\approx \begin{array}{r} 45 + 35 \\ 80 \end{array}$$

Actual

$$\begin{array}{r} 44.797 \\ + 34.901 \\ \hline 79.698 \end{array}$$

All seven day

Estimate

$$\approx \begin{array}{r} 12 + 9 + 28 + 45 + 35 + 12 + 8 \\ 149 \end{array}$$

Actual

$$\begin{array}{r} 3 \quad 3 \quad 3 \quad 2 \\ 11.786 \\ 9.159 \\ 28.340 \\ 44.797 \\ 34.901 \\ 11.512 \\ 8.023 \\ \hline 148.518 \end{array}$$

Front-end estimation with decimals



Front End Estimation

- Add the “front-end” digits, ignoring the decimals.
- Estimate the decimals.
- Add the decimal estimate to the front-end sum.

A blue rectangular slide with a dark blue background and light blue geometric patterns. The title 'Front End Estimation' is in bold yellow text. Below it are three bullet points in white text, each preceded by a yellow circle.

Example

5.45	Front-end: $5 + 9 + 3 + 6 = 23$
9.89	
3.53	
+ 6.03	
About 25	

Decimals:

- .89 is close to 1.
- .03 is close to 0.
- .45 + .53 is close to 1.
- $1 + 0 + 1 = 2$

or

Put the front-end with the decimal: $23 + 2 = 25$.

round to the ones

$$\begin{array}{r}
 5 \\
 \rightarrow 10 \\
 4 \\
 +6 \\
 \hline
 25
 \end{array}$$

Estimate the difference

$$12.12 - 8.56$$

Front end

Find the actual