

## Lesson 1-1: Using Front End Estimation to Find Sums and Differences

Instructions: Round the numbers below to approximate the difference or sum.

1)  $92 - 88$

5)  $763 + 298$

9)  $3,397 - 2,741$

2)  $29 - 26$

6)  $766 - 546$

10)  $7,745 - 3,235$

3)  $56 + 84$

7)  $841 - 161$

11)  $5,909 + 4,409$

4)  $52 + 31$

8)  $900 + 335$

12)  $4,471 - 3,647$

0

10,000

80

0

300

1,200

0

0

1,100

600

5,000

140

13)  $4,532 - 157$

18)  $685 - 371$

14)  $29 + 64,776$

19)  $2,701 + 98$

15)  $6,813 + 87,632$

20)  $87 - 38$

16)  $933 + 5,240$

21)  $383 + 1,461$

17)  $90,555 - 910$

22)  $20,094 + 17,001$

90,600

60,030

97,000

3,100

1,400

300

4,800

5,900

50

40,000

## Lesson 1-2: Using Front End Estimation to Find Sums and Differences

Instructions: Use front end estimation to identify the actual sum or difference.

1)  $59 + 60$

5)  $551 - 377$

9)  $7,612 - 2,878$

2)  $70 + 27$

6)  $231 + 909$

10)  $6,919 - 5,016$

3)  $64 - 46$

7)  $954 + 468$

11)  $3,265 + 1,466$

4)  $12 + 48$

8)  $825 - 104$

12)  $9,946 + 3,447$

97

1,422

174

4,734

721

18

1,903

119

60

1,140

4,731

13,393

13)  $28,954 - 1,154$

18)  $28,457 + 7,234$

14)  $56,538 + 480$

19)  $6,786 + 71$

15)  $28,041 - 2,886$

20)  $691 - 543$

16)  $88,695 - 75$

21)  $36,255 - 76$

17)  $13,311 + 68$

22)  $5,938 - 12$

27,800

25,155

13,379

57,018

5,926

88,620

35,691

6,857

148

36,179

# Lesson 1-3: Expanded Notation and Decimal Values

Instructions: Write each number in expanded notation, and then check your answers off the list below.

1) 34319                      2) 244.17                      3) 214.44                      4) 19.434

5) 58.446                      6) 14.364                      7) 1756.9                      8) 428.32

1000 + 700 + 50 + 6 + 0.9

50 + 8 + 0.4 + 0.04 + 0.006

10 + 4 + 0.3 + 0.06 + 0.004

200 + 40 + 4 + 0.1 + 0.07

400 + 20 + 8 + 0.3 + 0.02

10 + 9 + 0.4 + 0.03 + 0.004

200 + 10 + 4 + 0.4 + 0.04

30000 + 4000 + 300 + 10 + 9

Instructions: Solve each equation below for the value of (x). Find your answer from the shaded answers on the side of the sheet.

9)  $0.4 + 2 + x + 0.05 + 70 = 72.451$                       200

10)  $0.007 + 7 + 0.9 + x + 0.04 = 97.947$                       9

11)  $200 + x + 40 + 70000 + 2000 = 72249$                       40

12)  $70 + 7 + x + 0.4 + 2000 = 2677.4$                       600

13)  $4000 + 2 + 20000 + 80 + x = 24282$                       60

14)  $0.08 + 7 + x + 0.009 + 0.3 = 47.389$                       3

15)  $0.6 + x + 3 + 4000 + 800 = 4863.6$                       90

16)  $3000 + 30 + 500 + x + 80000 = 83533$                       0.001

Instructions: Match each fraction with a decimal

17)  $\frac{39}{100}$

18)  $\frac{99}{100}$

19)  $\frac{7}{10}$

20)  $\frac{283}{1,000}$

21)  $\frac{1}{10}$

22)  $\frac{2}{10}$

23)  $\frac{721}{1,000}$

24)  $\frac{503}{1,000}$

25)  $\frac{6}{10}$

	0.7		0.1		0.99
0.283		0.6		0.2	
	0.721		0.503		0.39

# Lesson 1-4: Decimal/ Fraction Equivalents

Instructions: Write each mixed number as a fraction.

1)  $1 \frac{29}{100}$

5)  $3 \frac{7}{10}$

9)  $3 \frac{19}{100}$

13)  $4 \frac{87}{100}$

2)  $5 \frac{73}{100}$

6)  $5 \frac{33}{100}$

10)  $2 \frac{1}{10}$

14)  $1 \frac{13}{100}$

3)  $6 \frac{43}{100}$

7)  $1 \frac{9}{10}$

11)  $5 \frac{51}{100}$

15)  $4 \frac{99}{100}$

4)  $4 \frac{67}{100}$

8)  $2 \frac{21}{100}$

12)  $4 \frac{7}{10}$

16)  $4 \frac{63}{100}$

3.7

3.19

4.67

4.7

4.87

5.73

2.21

5.51

2.1

6.43

5.33

1.13

1.9

1.29

3.19

4.99

17)  $3 \frac{2}{10}$

22)  $4 \frac{703}{1,000}$

27)  $5 \frac{411}{1,000}$

32)  $3 \frac{69}{100}$

18)  $1 \frac{463}{1,000}$

23)  $1 \frac{883}{1,000}$

28)  $2 \frac{8}{10}$

33)  $2 \frac{5}{10}$

19)  $4 \frac{49}{100}$

24)  $3 \frac{153}{1,000}$

29)  $3 \frac{323}{1,000}$

34)  $6 \frac{5}{10}$

20)  $4 \frac{77}{100}$

25)  $2 \frac{5}{10}$

30)  $4 \frac{4}{10}$

35)  $3 \frac{77}{100}$

21)  $2 \frac{471}{1,000}$

26)  $1 \frac{59}{100}$

31)  $2 \frac{27}{100}$

36)  $1 \frac{17}{100}$

3.2

3.69

2.27

6.5

4.703

2.5

5.411

1.463

2.8

2.471

2.5

3.77

3.323

4.77

4.49

1.59

1.17

1.883

3.153

4.4

Instructions: Round the numbers below to the nearest whole number.

1) **4.529**

4)  **$5 \frac{413}{1,000}$**

7) **8.549**

10)  **$6 \frac{17}{100}$**

2) **2.317**

5)  **$3 \frac{69}{100}$**

8) **6.058**

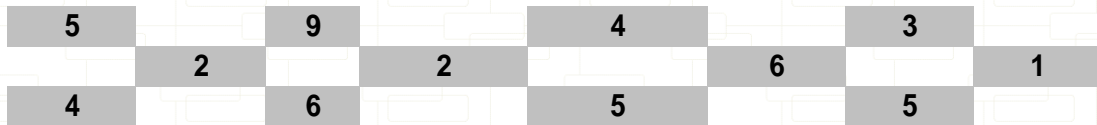
11)  **$1 \frac{77}{100}$**

3) **0.574**

6)  **$4 \frac{27}{100}$**

9) **2.901**

12)  **$5 \frac{363}{1,000}$**



Instructions: Estimate the sum or difference of the the expressions below.

10)  **$7.484 + 6 \frac{87}{100}$**

16)  **$3.372 + 7 \frac{581}{1,000}$**

14

11

11)  **$4.509 + 3 \frac{333}{1,000}$**

17)  **$5.461 + 8 \frac{29}{100}$**

16

8

12)  **$6.603 - 2 \frac{851}{1,000}$**

18)  **$8.243 + 8 \frac{37}{100}$**

4

13

13)  **$8.398 + 5 \frac{981}{1,000}$**

19)  **$4.070 + 3 \frac{57}{100}$**

8

3

14)  **$4.390 + 5 \frac{483}{1,000}$**

20)  **$8.675 - 5 \frac{69}{100}$**

0

9

15)  **$4.353 - 2 \frac{243}{1,000}$**

21)  **$2.330 - 1 \frac{551}{1,000}$**

2

14

## Lesson 1-6: Approximating the value of Sums and Differences with Decimals

Instructions: Choose the answer that best fits the sum or difference to each expression below.

1)  $9.988 + 3.571$

less than 1

2)  $9.19 - 6.918$

less than 14

3)  $6.965 + 4.034$

less than 7

4)  $8.363 - 6.684$

5)  $9.585 - 2.604$

more than 0

6)  $9.472 - 6.763$

more than 2

7)  $8.585 + 4.706$

less than 13

8)  $4.058 - 3.89$

less than 11

9)  $4.868 - 4.349$

less than 3

10)  $8.271 + 4.299$

more than 13

less than 2

## Lesson 1-7: Using Estimation to Find the Value of Expressions with Decimals

Instructions: Choose the answer that best fits the value of each expression.

1)  $9.013 - 2.748$  **15.565**

2)  $9.819 - 7.561$  **1.903**

3)  $8.795 - 2.875$  **0.358**

4)  $9.119 - 7.216$  **2.258**

5)  $8.638 + 6.927$  **6.265**

6)  $9.534 + 6.005$  **1.363**

7)  $7.801 + 2.5$  **15.539**

8)  $9.194 - 8.836$  **5.92**

9)  $5.925 - 4.562$  **10.301**

10)  $9.868 + 7.568$  **12.994**

11)  $9.954 - 4.152$  **17.436**

12)  $7.823 - 4.496$  **5.802**

13)  $8.949 + 4.045$  **3.327**

## 1-8 Quiz

- 1) Which value below represents a rational number between 9 and 10?
  - A. 10.444
  - B. 8.028
  - C. 9.431
  - D. 11.154
  
- 2) If 4 is added to a rational number between 9 and 10 the sum would be a number between...
  - A. 9 and 10
  - B. 13 and 14
  - C. 12 and 13
  - D. 14 and 15
  
- 3) If 1 is subtracted from a rational number between 5 and 6 the sum would be between...
  - A. 5 and 6
  - B. 4 and 5
  - C. 3 and 4
  - D. 5 and 6
  
- 4) What is the decimal equivalent of  $\frac{111}{1000}$  ?
  - A. 0.111
  - B. 1.11
  - C. 11.1
  - D. 111
  
- 5) What is the sum of 6.223 and 2.691 ?
  - A. 9.915
  - B. 8.914
  - C. 8.917
  - D. 7.904
  
- 6) What is the difference of 9.588 and 8.652 ?
  - A. 1.936
  - B. 18.24
  - C. 17.24
  - D. 0.936

7) Sam's dog's weight is 63.6 lbs and Nancy's is 40.9.  
How many pounds heavier is Sam's dog than Nancy's ?

- A. 104.5
- B. 22.7
- C. 23.7
- D. 22.6

8) Samantha's customer satisfaction rating is 58.7% for the current pay period and Sam's is 53.2.  
How much higher is Samantha's rating than Sam's ?

- A. 6.5
- B. 5.4
- C. 5.5
- D. 111.9

9)  $7.755 + 6.262$

- A. 14.016
- B. 13.017
- C. 14.017
- D. 15.017

10)  $5.71 - 2.239$

- A. 3.471
- B. 2.471
- C. 4.471
- D. 3.47

# 1-9 Using Front End Estimation to find Products of Whole Numbers

Use front end estimation to find the estimated product of the numbers below.

1)  $(2)(50)$

2)  $5 \times 86$

3)  $(6)(70)$

4)  $2 \times 18$

5)  $(9)(83)$

6)  $7 \times 84$

7)  $(7)(60)$

8)  $9 \times 60$

15,000	
	560
40	
	420
720	
	540
48,000	
420	

9)  $(92)(204)$

10)  $27 \times 759$

11)  $(26)(973)$

12)  $99 \times 569$

13)  $(17)(138)$

14)  $36 \times 948$

15)  $(79)(278)$

16)  $63 \times 357$

180,000	
	24,000
2,000	
	36,000
18,000	
	60,000
120,000	
450	

17)  $(4)(7136)$

18)  $46 \times 6606$

19)  $(6)(7744)$

20)  $19 \times 8900$

21)  $(4)(8504)$

22)  $45 \times 7481$

23)  $(3)(5126)$

24)  $18 \times 6465$

350,000	
	24,000
28,000	
	24,000
350,000	
	30,000
36,000	
100	

Instructions: Use front end estimation to find the actual product of the numbers

25)  $232 \times 48$

26)  $317 \times 216$

27)  $522 \times 357$

28)  $3 \times 48$

29)  $2 \times 530$

30)  $723 \times 448$

31)  $275 \times 307$

32)  $8 \times 114$

33)  $69 \times 54$

34)  $19 \times 55$

35)  $8 \times 774$

36)  $9 \times 311$

11,136	
	3,726
912	
	84,425
68,472	
	186,354
144	
	2,799
1,045	
	6,192
1,060	
	323,904

# 1-10 Using Front End Estimation to find Products of Decimal Values

Use front end estimation to find the estimated product of the numbers below.

1)  $(0.8)(43)$

9)  $(3.7)(703)$

17)  $(0.8)(3493)$

2)  $8 \times 90$

10)  $4.4 \times 635$

18)  $0.5 \times 7955$

3)  $(0.2)(13)$

11)  $(9.9)(909)$

19)  $(0.9)(6388)$

4)  $8 \times 17$

12)  $4.7 \times 874$

20)  $0.6 \times 4976$

5)  $(0.6)(22)$

13)  $(7.1)(743)$

21)  $(0.4)(8754)$

6)  $9 \times 86$

14)  $8.9 \times 722$

22)  $0.1 \times 2930$

7)  $(0.9)(98)$

15)  $(4.1)(955)$

23)  $(0.9)(7110)$

8)  $3 \times 38$

16)  $7 \times 555$

24)  $0.6 \times 9732$

	32	
5,400		2,800
	2	
160		6,300
	6,000	
90		300

	4,000	
2,400		2,400
	4,500	
12		4,000
	810	
4,900		6,300

	3,000
720	
	9,000
3,600	
	4,200
120	

25)  $3 \times 59.8$

31)  $0.4 \times 44.1$

17.64	
	776.00

26)  $3 \times 26.7$

32)  $0.4 \times 16.1$

179.40	
	241.80

27)  $0.9 \times 81.6$

33)  $6 \times 40.3$

2.68	
	35.01

28)  $0.1 \times 26.8$

34)  $6 \times 92.6$

73.44	
	6.44

29)  $8 \times 97$

35)  $8 \times 41.6$

555.60	
	332.80

30)  $0.7 \times 39.2$

36)  $0.9 \times 38.9$

27.44	
	80.10

# 1-11 Using Front End Estimation for Division

**Instructions:** Find the value of each expression by finding the quotient. Your answers should add up to the numbers below each column.

1) $\frac{560}{8} =$	5) $\frac{60}{3} =$	9) $\frac{60}{2} =$	13) $\frac{80}{4} =$
2) $\frac{2,400}{6} =$	6) $\frac{5,600}{8} =$	10) $\frac{2,000}{4} =$	14) $\frac{2,700}{9} =$
3) $\frac{12,000}{4} =$	7) $\frac{36,000}{9} =$	11) $\frac{30,000}{6} =$	15) $\frac{72,000}{8} =$
4) $\frac{640,000}{8} =$	8) $\frac{420,000}{7} =$	12) $\frac{60,000}{2} =$	16) $\frac{720,000}{9} =$
<b>83,470</b>	<b>64,720</b>	<b>35,530</b>	<b>89,320</b>

**Instructions:** Round the **numerator** of each fraction to the nearest **multiple** of the **denominator**, and then approximate the value of the quotient.

17) $\frac{323}{4} =$	21) $\frac{322}{8} =$	25) $\frac{719}{9} =$	29) $\frac{358}{9} =$
18) $\frac{8,100}{9} =$	22) $\frac{3,180}{4} =$	26) $\frac{4,170}{6} =$	30) $\frac{7,170}{9} =$
19) $\frac{29,800}{5} =$	23) $\frac{45,000}{5} =$	27) $\frac{24,700}{5} =$	31) $\frac{29,800}{5} =$
20) $\frac{562,000}{7} =$	24) $\frac{157,000}{4} =$	28) $\frac{541,000}{9} =$	32) $\frac{347,000}{7} =$
<b>86,980</b>	<b>49,840</b>	<b>65,780</b>	<b>56,840</b>

**Instructions:** Before dividing, cancel zeros, and then find the quotient in the same way you did for for exercises #1-16. Check your answers to make sure they add to the given number for each column.

32) $\frac{18,000}{20} =$	36) $\frac{14,000}{20} =$	40) $\frac{64,000}{80} =$	44) $\frac{18,000}{30} =$
33) $\frac{800}{40} =$	37) $\frac{3,600}{60} =$	41) $\frac{2,400}{80} =$	45) $\frac{2,700}{90} =$
24) $\frac{450,000}{50} =$	38) $\frac{490,000}{70} =$	42) $\frac{420,000}{70} =$	46) $\frac{40,000}{20} =$
35) $\frac{32,000,000}{400} =$	39) $\frac{18,000,000}{300} =$	43) $\frac{63,000,000}{700} =$	47) $\frac{81,000,000}{900} =$
<b>89,920</b>	<b>67,760</b>	<b>96,830</b>	<b>92,630</b>

## 1-12 Using Front End Estimation for Division with Rational Number Quotients

Instructions: Round both the numerators and denominators so you can approximate the value of the quotient. Then choose an answer from the shaded values following exercises #1-16.

- |                         |                         |                          |                          |
|-------------------------|-------------------------|--------------------------|--------------------------|
| 1) $\frac{3,083}{44}$   | 5) $\frac{7,110}{79}$   | 9) $\frac{1,279}{64}$    | 13) $\frac{4,453}{89}$   |
| 2) $\frac{2,010}{995}$  | 6) $\frac{4,155}{825}$  | 10) $\frac{2,480}{415}$  | 14) $\frac{8,037}{893}$  |
| 3) $\frac{22,900}{57}$  | 7) $\frac{30,300}{51}$  | 11) $\frac{80,200}{89}$  | 15) $\frac{14,500}{74}$  |
| 4) $\frac{407,000}{45}$ | 8) $\frac{166,012}{82}$ | 12) $\frac{373,038}{74}$ | 16) $\frac{404,000}{58}$ |

Less Than 10	2.02	5.04	5.98	9.00
Less Than 100	19.98	50.03	70.07	90.00
Less Than 1,000	195.95	401.75	594.12	901.12
Less Than 10,000	2,024.54	5,041.05	6,965.52	9,044.44

17) John has 18000 soccer cards he keeps in four card binders. If the same number of cards are in each binder, how many cards are in one binder?

- a. 7,000
- b. 9,000
- c. 8,000
- d. 8,004

18) 4930 students have been put on 7 teams for the science fair.

If the teams are to be as even as possible, about how many students are on each team?

- a. 804
- b. 704
- c. 764
- d. 604









19) 739 horses stood on the World's Largest Scale at last year's county fair. Their combined weight was 373,038 pounds. What was the approximate average weight of a single horse standing on the scale?

- a. 445
- b. 605
- c. 405
- d. 505

answers: 1) c      2) b   3) d

# 1-13 Decimal Quotients

Instructions: Find the value of each expression by finding the quotient. Your answers should add up to the numbers below each column.

1) $\frac{18}{6}$ <input type="text"/>	4) $\frac{56}{7}$ <input type="text"/>	7) $\frac{5}{5}$ <input type="text"/>	10) $\frac{21}{3}$ <input type="text"/>
2) $\frac{1.8}{6}$ <input type="text"/>	5) $\frac{4}{8}$ <input type="text"/>	8) $\frac{6.3}{7}$ <input type="text"/>	11) $\frac{0.9}{3}$ <input type="text"/>
3) $\frac{0.1}{2}$ <input type="text"/>	6) $\frac{0.24}{6}$ <input type="text"/>	9) $\frac{0.14}{2}$ <input type="text"/>	12) $\frac{0.03}{3}$ <input type="text"/>
<input type="text" value="3.35"/> 	<input type="text" value="8.54"/> 	<input type="text" value="1.97"/> 	<input type="text" value="7.31"/> 
13) $\frac{16}{2}$ <input type="text"/>	16) $\frac{32}{8}$ <input type="text"/>	19) $\frac{6}{6}$ <input type="text"/>	22) $\frac{48}{8}$ <input type="text"/>
14) $\frac{4.5}{5}$ <input type="text"/>	17) $\frac{1.2}{4}$ <input type="text"/>	20) $\frac{6.4}{8}$ <input type="text"/>	23) $\frac{1.2}{3}$ <input type="text"/>
15) $\frac{0.1}{5}$ <input type="text"/>	18) $\frac{0.1}{2}$ <input type="text"/>	21) $\frac{0.56}{8}$ <input type="text"/>	24) $\frac{0.14}{7}$ <input type="text"/>
<input type="text" value="8.92"/> 	<input type="text" value="4.35"/> 	<input type="text" value="1.87"/> 	<input type="text" value="6.42"/> 

Instructions: Use what you know about division estimation to find the quotient

25) $\frac{18.2}{7}$	30) $\frac{8.4}{2}$	35) $\frac{352}{4}$	40) $\frac{1.5}{2}$
26) $\frac{59.5}{7}$	31) $\frac{21.6}{8}$	36) $\frac{352}{4}$	41) $\frac{720}{9}$
27) $\frac{25.6}{4}$	32) $\frac{6.02}{7}$	37) $\frac{306}{9}$	42) $\frac{18.6}{6}$
28) $\frac{71.1}{9}$	33) $\frac{330}{5}$	38) $\frac{3.78}{7}$	43) $\frac{145}{5}$
29) $\frac{222}{3}$	34) $\frac{365}{5}$	39) $\frac{288}{4}$	44) $\frac{420}{6}$

<input type="text" value="4.2"/>	<input type="text" value="74"/>	<input type="text" value="66"/>	<input type="text" value="70"/>	<input type="text" value="6.4"/>	<input type="text" value="88"/>
<input type="text" value="80"/>	<input type="text" value="88"/>	<input type="text" value="29"/>	<input type="text" value="73"/>	<input type="text" value="0.86"/>	<input type="text" value="34"/>
<input type="text" value="2.6"/>	<input type="text" value="0.75"/>	<input type="text" value="72"/>	<input type="text" value="7.9"/>	<input type="text" value="0.54"/>	<input type="text" value="3.1"/>
<input type="text" value="2.7"/>				<input type="text" value="8.5"/>	

