Grade 6 – Lesson 5

Math Practice Sheets

Decimal Arithmetic

Examples

Practice Questions

Extra Challenge Unit

Student Name

_____

Unit 5.1

Estimating Decimal Sums and Differences

Example

To estimate the sums or differences of decimals, first round to the nearest whole number, then use mental math to find the sum or difference of the estimates.

Paul has to finish his work in 12.75 minutes but he finished his work in 16.94 minutes. About how much late was Paul?

Use rounding to quick estimate.

Round to nearest whole number.

$$\begin{array}{rcr} 16.94 & \longrightarrow & 17 \\ -\ 12.75 & \longrightarrow & -\ 13 \\ \hline & & 4 \end{array}$$

The difference of time is about 4 minutes.

Use front-end-digits to make a front-end estimate, and then calculate.

$$\begin{array}{rcr} 16.94 & \longrightarrow & 16 \\ -\ 12.75 & \longrightarrow & -\ 12 \\ \hline & & 4 \end{array}$$

Since 0.94 > 0.75, the difference is greater than 4.

∴ Paul is more than 4 minutes late in his work.

Exercise

1. Round to the nearest tenth in estimating each of the following expressions.

a) 1.234 + 2.123

b) 30.34 - 14.57

c) 104.83 - 95.33

d) 170.44 + 10.37

Unit 5.1

Estimating Decimal Sums and Differences

Exercise

2. Round the following to the nearest whole number and estimate the answer.

a) 2.456 + 34.17

b) 13.75 + 75.33

c) 18.96 + 27.14

d) 59.8 - 29.1

e) 107.89 - 45.19

f) 207.88 + 0.88 + 1.93

3. Estimate by using front-end estimation.

a) $49.95 - $48.18

b) $7.32 + $11.93

c) 97.18 - 35.56

d) 58.11 - 15.55

e) 9.99 - 8.19

f) 107.79 - 101.11

Unit 5.1

Estimating Decimal Sums and Differences

Exercise

Solve the problems below.

4. Lily has $15. She has to buy a book that costs $7.95 and a plant that costs $7.11. Will she have enough money for her purchase? Estimate and explain your answer.

5. Devin and David want to visit the city zoo. They also want to buy a soda as they look at the animals. The price of each ticket is $9.75 and the price of each drink is $5.33. David said that $15 is sufficient for each and Devin said we need more than $15 each. Who is correct and why?

6. Which of the following is best estimation of $3.95 + $11.33?

   a) 15 b) 14

   c) 16 d) 13

7. The score obtained by 5 students is 20.75, 21.30, 22.99, 23.33, and 23.75. Estimate the highest difference and highest sum of two scores.

Unit 5.2 Decimal Arithmetic: Adding and Subtracting

Example

In a test Laura made 20.75 points and Jack made 19.58 Points.

Find how much higher Laura's score was than Jack's score.

Solution:

If we estimate the scores,

20.75 - 19.58 =

20.80 - 19.60 = 1.20

To find the difference we have to subtract.

$$\begin{array}{r} 20.75 \\ -\ 19.58 \\ \hline \end{array}$$

$$\begin{array}{r} {\scriptstyle 6\ 15} \\ 20.7\cancel{5} \\ -\ 19.58 \\ \hline 1.17 \end{array}$$

Laura obtained 1.17 points more than Jack. So, our estimation 1.20 is close to 1.17.

So, it is reasonable.

Exercise

1. Calculate the sum and difference of each of the following.

a) 6.7 + 7.2	b) 9.32 + 8.81	c) 11.5 - 3.1
d) 20.75 - 11.55	e) 17 - 8.103	f) 12 + 3.715

Unit 5.2

Decimal Arithmetic: Adding and Subtracting

Exercise

2. Calculate each of the following as directed.

a) 20.34 + 30.13

b) 11.55 - 3.39

c) 22 + 3.175

d) 29.923 - 12.345

e) 11.234 + 22.567

f) 22.34 - 12.43

g) 123 - 99.45

h) 175 - 0.175

i) 0.375 - 0.126

j) 39.14 + 19.34

k) 1,004.5 - 5.124

l) 4,234 - 1,234.5

Decimal Arithmetic: Adding and Subtracting

Exercise

3. The table to the right shows the ERA of each player. Use the table and answer the following questions.

Players	ERA
John	2.56
Rose	1.89
David	2.24
Kelly	1.92
Lily	3.02

a) Find the difference between the lowest and the highest ERA.

b) What is the total ERA of Kelly and Lily?

c) Find the total ERA of John, Rose, and David.

4. Which of the following is the correct sum of 35.45 + 0.351?

a) 38.80 b) 35.801

c) 35.001 d) 35.451

5. Pinky spent $345.45 in shopping. Kelly spent $965.23 in shopping. Who spent more money and how much more?

6. Rose's total cost for travel was $102.75. She spent $72.16 for lunch. How much more did she spent for travel?

Unit 5.3

Decimal Arithmetic: Estimate Products and Quotients

Example

Estimate the following.

a) 21.12 ÷ 6.8

Solution:

21.12 ÷ 6.8

21.0 ÷ 7

i.e. 21.0 ÷ 7 = 3

So, 21.12 ÷ 6.8 ≈ 3

Use compatible numbers to estimate.

34.92 ÷ 5.12

35 ÷ 5 = 7

∴ 34.92 ÷ 5.12 ≈ 7

b) 62.12 × 2.81

Round each factor.

62.12 × 2.81

62 × 3 = 186

Use a compatible number.

62.12 × 8.81

62 × 10 = 620

∴ 62.12 × 8.81 ≈ 620

Exercise

1. Using rounding, estimate each answer.

a) 7.8 × 51

b) 5,210 ÷ 7.12

c) 37.12 × 5.79

d) 3,456.12 ÷ 29.82

Decimal Arithmetic: Estimate Products and Quotients

Exercise

2. Use compatible numbers to estimate each of the following.

a) 3.45 × 59.88

b) 52.11 ÷ 4.55

c) 701.30 × 100.91

d) 37.52 ÷ 19.70

3. Estimate each of the following.

a) 225 ÷ 4.54

b) 291.2 ÷ 29.8

c) 27.8 × 3.9

d) 39.7 × 5.3

e) 124.9 ÷ 15.2

f) 839.7 ÷ 39.8

g) 3.52 × 27.83

h) 15.61 × 3.02

i) 275.1 ÷ 25.3

j) 999.7 ÷ 49.8

k) 873.1 ÷ 8.73

l) 12.58 × 3.893

Exercise

4. Laura used compatible numbers to estimate that 42 × 11.12 is about 420. Does the estimate seem reasonable? Explain.

5. Which compatible numbers will be appropriate to estimate 376.52 ÷ 9.94?

6. In your opinion, which method of estimation is easier to use?

7. Pinky estimates that she can solve 23 mathematical problems in one month. If she earns $5.95 for each problem she solves, estimate how much money she will earn in one month.

8. By rounding, estimate 43.782 × 99.723.

Unit 5.3

Decimal Arithmetic: Estimate Products and Quotients

Exercise

9. Which of the following is a reasonable estimate of the total distance covered by Peter in 7 hours if he covers 13.75 kilometers in an hour?

a) 120 km b) 98 km

c) 112 km d) 95 km

10. Estimate the total number of computers Hester will sell in 7.45 hours if she sells 15 computers per hour.

11. The charge for parking a car per hour is $3.75. What will be the total charge of parking a car for 10.95 hr?

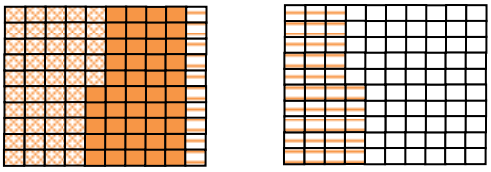
12. On the average Lily earns about 30.359 on each test she takes. About how many points will she earn if she averages the same grade for 7 tests?

Unit 5.4

Decimal Arithmetic: Multiplying Decimals

Example

a) Find the product of 3 and 0.45



The product is the total shaded area. i.e. 3 × 0.45 = 1.35

i.e.

$$\begin{array}{r} {\scriptstyle 1} \\ 0.45 \\ \times\ \ 3 \\ \hline 1.35 \end{array}$$

0.45 ← 2 decimal place

× 3 ← 0 decimal place

1.35 ← 2 decimal place

i.e. 0.45 × 3 = 1.35

b) Find: 23.7 × 2.3

$$\begin{array}{r} {\scriptstyle 1} \\ 23.7 \\ \times\ \ 2.3 \\ \hline 711 \\ 474 \\ \hline 54.51 \end{array}$$

23.7 ← 1 decimal place

× 2.3 ← +1 decimal place

54.51 ← 2 decimal place

∴ 23.7 × 2.3 = 54.51

c) Find: 0.35 × 0.2

$$\begin{array}{r} {\scriptstyle 1} \\ 0.35 \\ \times\ 0.2 \\ \hline 0.070 \end{array}$$

0.35 ← 2 decimal place

× 0.2 ← +1 decimal place

0.070 ← 3 decimal place

We have to add zeroes to the left of the product to write the answer correctly.

Exercise

1. Put the decimal point in the appropriate place within the following products.

a) 3 × 0.25 = 75

b) 0.352 × 2 = 704

c) 0.4 × 0.75 = 300

d) 0.2 × 0.39 = 78

e) 0.512 × 4 = 2048

f) 0.37 × 0.4 = 148

g) 1.5 × 0.3 = 45

h) 0.232 × 8 = 1856

Unit 5.4

Decimal Arithmetic: Multiplying Decimals

Exercise

2. Find the product of each of the following.

a) 10 × 0.35

b) 3 × 0.432

c) 0.8 × 0.9

d) 23.4 × 1.3

e) 3.2 × 2.1 × 2.5

f) 2.8 × 1.2 × 1.3

g) 78.7 × 0.2 × 3.1

h) 0.8 × 0.9 × 1.2

i) 33.4 × 0.4

j) 2.468 × 2.2

Decimal Arithmetic: Multiplying Decimals

Exercise

3. When do you need to add zeros to the left of a product of two decimal numbers? Explain.

4. Explain why the decimal point moves to the left when multiplying by 0.10 and to the right when multiplying by 10.

5. Which of the following is the correct product of 0.35 and 0.25?

a) 0.875 b) 8.75

c) 0.0875 d) 875

6. Kim solved 0.9 × 0.875 and found the product to be 7.875. Is Kim right? Explain why or why not.

Decimal Arithmetic: Multiplying Decimals

Exercise

7. The heart beats once in 0.685 seconds. How long will it take the heart to beat 12 times?

8. Laura said that the cost of each ticket for a movie is $4.75. How much will Laura need if she treats 7 friends to the movie?

9. The cost of painting a meter of road white is $0.95. How much will it cost to paint a 2,035 meter road white?

10. Which rule of multiplication is most reasonable and useful to multiply $0.7 \times 0.9 \times 1.3$? Find the product.

Unit 5.5

Mixed Problem Solving

Example

If Laura bought 3 T-shirts costing $2.75 each and saves $12.55, how much money did she have?

Solution:

Total cost of 3 T-shirts

$3 \times \$2.75$

$= \$8.25$

So, Laura had $20.80 in total.

She saved $12.55. So, the total amount of money that Laura has is

$\$12.55 + \$8.25 = \$20.80$

Pinky has $375.50. She bought 7 jackets, each costing $47.35.

How much money did she have left?

Solution:

$375.50 - 7 \times 47.35 = 375 - 331.45 = 43.55$

So, Pinky had $43.55 left.

Exercise

1. Solve the following questions.

a) $3 \times 0.75 + 3.90$

b) $5.75 - 0.3 \times 0.8$

c) $11.944 - 15 \times 0.55$

d) $11 \times 0.77 + 11.77$

Unit 5.5

Mixed Problem Solving

Exercise

e) 3.90 × 3 + 0.75

f) 3 × 4.39 - 0.88

g) 17.38 × 4 + 0.385

h) 9.3 × 3.20 + 4.65

i) 39.40 × 0.5 - 9.48

j) 11.37 × 0.3 - 3.333

k) 9.99 - 0.75 × 3.45

l) 19.37 + 3.7 × 0.8

m) 39.39 + 0.75 × 0.75

n) 49.89 - 100 × 0.35

Unit 5.5

Mixed Problem Solving

Exercise

2. David bought 7 chocolates each costing $0.79 and a birthday cake costing $3.75. How much did he spend in total?

3. Kara had $99.50. She paid $39.45 for each of her two children to go on a field trip. How much amount did she have left?

4. Find the total miles covered by John if he travelled 7.495 miles per day for 5 days and 9.37 miles on the sixth day.

5. Which of the following is the answer for the 5 × 0.75 - 3.25?

   a) 0.5 b) 0.55

   c) -12.5 d) 2.25

6. If the heart takes 0.620 seconds to beat once, how much time will it take it to beat 11 times?

Unit 5.6

Math Challenges

Exercise

1. Round each of the following to the nearest whole number and estimate.

a) 3.91 + 4.32 + 5.55

b) 9.99 - 1.32

c) 111.11 - 11.99

d) 123.45 + 67.89

2. What will be a reasonable estimate for the sum and the difference of $137.35 and $115.35?

3. Abel spent $200.5 for drinks. If he had $300, how much money will he have left?

4. Find the sum and difference of each of the following.

a) 32.73 + 103.11

b) 303.10 - 70.85

c) 77.06 + 25.71

d) 22.951 - 0.325

Unit 5.6

Math Challenges

Exercise

5. Estimate each of the following.

a) 376.95 × 13.45

b) 23.23 ÷ 7.12

c) 1234.56 ÷ 4.98

d) 2469.9 ÷ 39.8

6. About how much money is needed for Pinky to pay bills for lunch for 21 of her friends, if the cost for each person is $35.38?

7. Find the product of each of the following.

a) 3.456 × 12

b) 0.545 × 0.56

c) 0.989 × 0.89

d) 0.3 × 2.79 × 0.38

Math Challenges

Exercise

8. How much money will it cost a baker to buy 4.751 kg of flour if the price of flour per kg is $0.98?

9. Solve the following.

a) 33 × 0.345 + 0.56

b) 9.456 - 8 × 0.95

c) 120 × 0.3 - 24.49

d) 73.29 + 8 × 17.99

10. How much will Rose spend if she buys 2 earrings each costing $7.29, 3 pairs of gloves of each costing $1.75, and a sweater costing $9.99?

Congratulations!

You have finished a lesson. You should be very proud of yourself.
Now it is time to progress to the next lesson.
Your next assignment is notated by a green arrow.

Next

Grade 6 — Answer Key of Lesson 5

Unit 5.1

1. a) 3.3 b) 15.7 c) 9.5 d) 180.8
2. a) 37 b) 89 c) 61 d) 31 e) 63 f) 211
3. a) 2 b) 19 c) 67 d) 43 e) 2 f) 7
4. no; its less 5. Devin 6. a 7. 3; 45

Unit 5.2

1. a) 13.9 b) 18.13 c) 8.4 d) 9.2 e) 8.897 f) 15.715
2. a) 50.47 b) 8.16 c) 25.175 d) 17.578 e) 33.801 f) 9.91
   g) 23.55 h) 174.825 i) 0.249 j) 58.48 k) 999.376 l) 2999.5
3. a) 1.13 b) 4.94 c) 6.69 4. b 5. Kelly; $619.78
6. $30.59

Unit 5.3

1. a) 408 b) 700 c) 216 d) 110
2. a) 180 b) 10 c) 70,000 d) 2
3. a) 45 b) 10 c) 112 d) 200 e) 8 f) 21
   g) 112 h) 48 i) 11 j) 20 k) 100 l) 52
4. yes 5. 380÷10 7. $138 8. 4,400 9. b 10. 105
11. $44 12. 210 points

Unit 5.4

1. a) 0.75 b) 0.704 c) 0.300 d) 0.078 e) 2.048 f) 0.148
   g) 0.45 h) 1.856
2. a) 3.5 b) 1.296 c) 0.72 d) 30.42 e) 16.8 f) 4.368
   g) 48.794 h) 0.864 i) 13.36 j) 5.4296 5. c
7. 8.22 sec 8. $33.25 9. $1933.25 10. 0.819

Unit 5.5

1. a) 6.15 b) 5.51 c) 3.694 d) 20.24 e) 12.45 f) 12.29
   g) 69.905 h) 34.41 i) 10.22 j) 0.078 k) 7.4025 l) 22.33
   m) 39.9525 n) 14.89 2. $9.28 3. $20.6 4. 46.825 miles
5. a 6. 6.82 sec

Unit 5.6

1. a) 14 b) 9 c) 99 d) 191
2. 252; 22
3. $99.5
4. a) 135.84 b) 232.25 c) 102.77 d) 22.626
5. a) 4,901 b) 3 c) 248 d) 60
6. $743
7. a) 41.472 b) 0.3052 c) 0.88021 d) 0.31806
8. 4.65598
9. a) 11.945 b) 1.856 c) 11.51 d) 217.21
10. $29.82