Helping With Math

GRADES

Arithmetic Skill:
Basic Operations of Decimals

Hanukkah Sameach!

Hanukkah is a Jewish holiday that is celebrated in November or December. It starts on the 25th of Kislev, a month in the Hebrew calendar. It is also called the Festival of Lights or the Feast of Dedication and takes place for eight days. This holiday is to celebrate the rededication of the Second Temple of Jerusalem.

Source: https://www.britannica.com/topic/Hanukkah

Suitable for students
aged 8-12

This pack is suitable for learners aged 8-12 years old or 4th to 7th graders. The content covers fact files and relevant basic and advanced activities of basic operations of decimals topics that aim to develop and strengthen the learners' arithmetic skills.

Arithmetic / Calculation Skill

Arithmetic is a fundamental branch of mathematics where we learn addition, subtraction, multiplication, and division of numbers. We use arithmetic in simple transactions of our daily lives.

CONCEPTS

Arithmetic skill is the foundation of learning mathematics. The basic operations: addition, subtraction, multiplication, and division are used by all the other branches of math.

When learning arithmetic, we open ourselves to a lot of opportunities that help us better understand the world around us.

In all aspects of life whether it be business or personal, we try to understand things by quantifying them. We ask the questions: How many? How much? How high? How far?

In our everyday living, when shopping, cooking, or simply enjoying a morning run. We use arithmetic to calculate how much to pay, how much to add, or how far a distance is.

An architect or an engineer would decide on the measurements of a structure they are building by doing arithmetic computations. Data analysts would use arithmetic to calculate the performance of a company to understand how they could do better. These are only some examples of jobs that make use of arithmetic daily.

Arithmetic is a very useful skill to have.
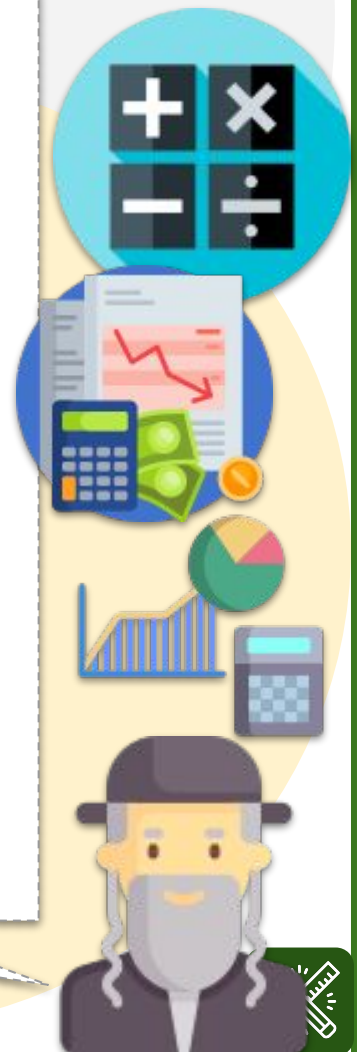
Learning Arithmetic

We start with learning basic arithmetic in **kindergarten**, where we first learn how to count and add or subtract using visual aid objects or simply our fingers.

As we advance to **elementary,** we learn to add and subtract within a greater range of numbers. We also learn how to skip count by 2s, 3s or 4s up to 10s. Eventually, the ability to add and subtract is enhanced as we learn how to do multi-digits calculations. We also learn multiplication and division and how the four basic operations relate to each other.

In **middle school,** we learn the beginnings of more complex concepts of arithmetic like algebra. We master the use of the four basic operations and apply this to computing ratio, proportions, and basic concepts of geometry.

Finally, we learn how to apply our learnings of arithmetic in **high school** to other advanced and complex branches of math.
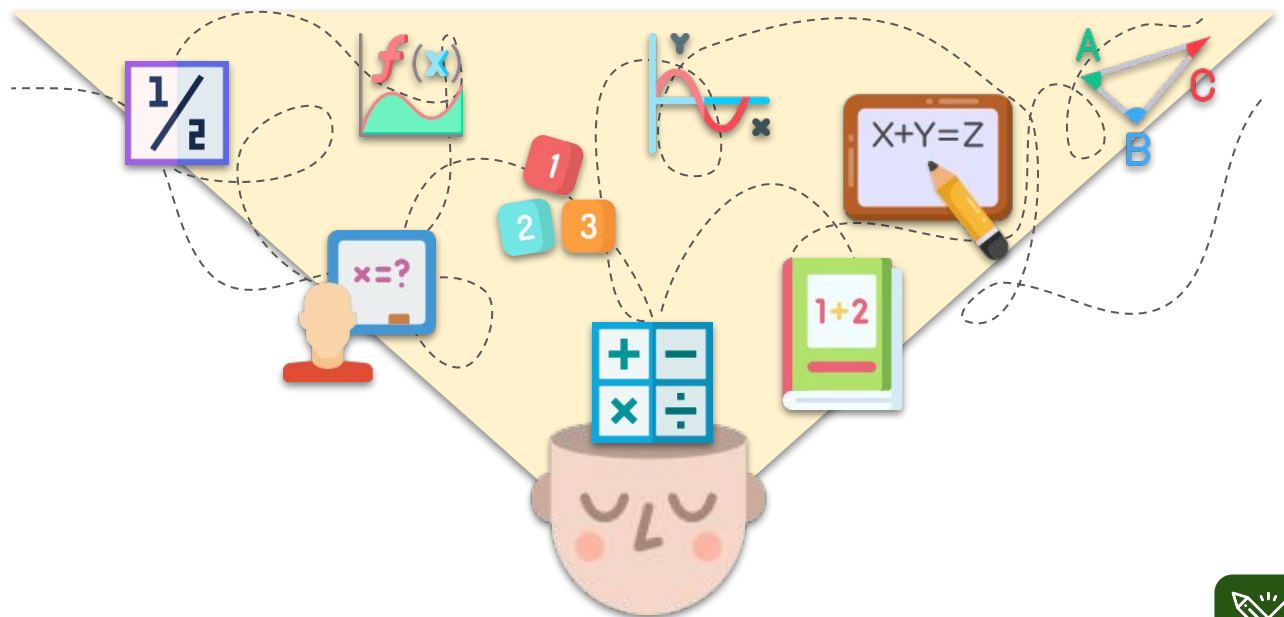
DECIMALS

What is a Decimal?

A decimal is a number expressing a fraction based on the scale of tens or power of ten.

1	.	2	5
Whole Number	Decimal Point	Tenths	Hundreths

When writing down a decimal number, you place the whole number to the left and the fractional value to the right. These are then separated by a decimal point.

Understanding the Fractional Value

0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	**1**

Let us imagine the number one divided into ten squares. If you take two parts out of the ten squares, you have a fraction of 2 out of 10. That would then be called two tenths or 2 / 10 or in decimals 0.2

Based on the chart above, if we have the decimal number 1.2, this would be illustrated as:

1.2	Whole Number	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	**1**
	Fraction	0.1	0.2								

ADDITION AND SUBTRACTION OF DECIMALS

Steps when **adding or subtracting** decimals:

1. Line up the numbers you are about to add or subtract so that the decimals points are aligned. You may add 0's where necessary to help guide you.

2. Add or subtract the numbers as one would usually do.

3. Place the decimal point in the sum or difference making sure that it lines up to the decimal points of the numbers you are adding or subtracting.

Adding Decimals

Ex. 1

		5	.	5	0
+		6	.	2	3
	1	1	.	7	3

Ex. 2

		0	.	8	0
+	5	6	.	1	1
	5	6	.	9	1

Subtracting Decimals

Ex. 1

		⁷8̷	.	2̷	¹0
-		6	.	5	2
		1	.	6	8

Ex. 2

	⁴5̷	¹5	.	²3̷	¹0
-		7	.	2	9
	4	8	.	0	1

MULTIPLICATION OF DECIMALS

Steps when **multiplying** decimals:

1. The decimal numbers are to be multiplied the way you would with whole numbers. You do not need to align the decimals points.

2. After multiplying the numbers, count the number of decimal places in each factor.

   ○ The total number of decimal places of all factors will be the number of decimal places in the product.

Ex. 1

		2	.	5	
X		3	.	5	
		1	2	5	
+	7	5			
	8	.	7	5	

2 . 5 → 1 decimal place

3 . 5 → 1 decimal place

8 . 7 5 → 2 decimal places (total decimal places of the above factors)

Ex. 2

	3	2	.	5	3
X			1	.	2
	6	5	0	6	
+	3	2	5	3	
3	9	.	0	3	6

3 2 . 5 3 → 2 decimal places

1 . 2 → 1 decimal place

3 9 . 0 3 6 → 3 decimal places (total decimal places of the above factors)

DIVISION OF DECIMALS

Steps when **dividing** decimals **when a divisor is a whole number**

1. Before computing, place the decimal point in the quotient aligned with the decimal point of the dividend.

2. Divide the numbers until you get the final answer.

Ex. 1

2.24 ÷ 2

		1	.	1	2	◄ Quotient
Divisor ►	2	2	.	2	4	◄ Dividend

Ex. 2

25.242 ÷ 12

				2	.	1	0	3	5
1	2	2	5	.	2	4	2	0
		−	2	4				
			1	2				
						4	2	
					−	3	6	
						6	0	

DIVISION OF DECIMALS

Steps when **dividing** decimals **when the divisor is a decimal**

1. If the divisor is a decimal, then we first have to move the decimal point to the right to convert it to a whole number.

2. Note down how many times you move the decimal point. You will need to move the decimal point of the dividend as many times as you moved the decimal points of the divisor.

3. Place the decimal point in the quotient aligned with the decimal point of the dividend. And then divide the numbers until you get the final answer.

Ex. 1

3.36 ÷ 1.2

Divisor

1 . 2 3 . 3 6 ← Dividend

Move decimal point once to convert it to a whole number

Since we moved the decimal point of the divisor once, we must do the same to the dividend and move the decimal point once.

Quotient ➤ 2 . 8

1 2 3 3 . 6

− 2 4

9 6

−

9 6

0

DIVISION OF DECIMALS

cont. **dividing** decimals **when the divisor is a decimal**

Ex. 2

4286 ÷ .32

Move decimal point twice to convert it to a whole number
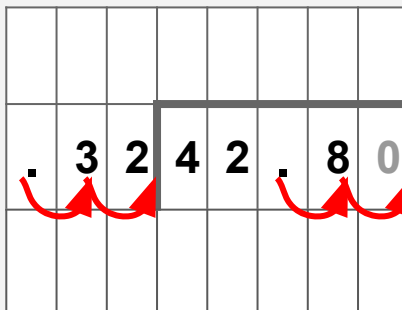
Since we moved the decimal point of the divisor twice, we must do the same to the dividend and move the decimal point twice.

| | | . | 3 | 2 | 4 | 2 | . | 8 | 0 |

					1	3	3	.	7	5
3	2	4	2	8	0	.	0	0
		-	3	2				
			1	0	8			
		-		9	6			
				1	2	0		
			-		9	6		
					2	4	0	
				-	2	2	4	
						1	6	0
					-	1	6	0
								0

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HANUKKAH SAMEACH!

Happy Hanukkah! Help prepare for this special celebration. Connect the problems to their sum or difference. You may use the space for your calculations.

1. $3.45 + 25.32 =$
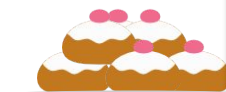
2. $10.34 - 5.25 =$

3. $28.55 + 32.10 =$

4. $452.5 - 8.35 =$

5. $68.15 + 76.97 =$

5.09

444.15

28.77

145.12

60.65

25th KISLEV

Hanukkah happens on 25th Kislev. This is a month on the Hebrew calendar. Learn the months of the Hebrew calendar. Answer the problems in each month and show your solution.

Nisan: $10.7 + 6$

Iyar: $9.3 + 9.52$

Adar: $60.8 + 6.956$

Shevat: $3.44 + 4.82$

Sivan: $90.32 + 7.4$

Tevet: $25.34 + 7.2$

Tammuz: $5.532 + 5.2$

$3.9 + 5.4$

Kislev: $11.1 + 3.58$

Av: $7.5 + 23.8$

Heshvan

Tishri: $2.5 + 6.9$

Elul: $105.2 + 3.52$

5 6 7 8 9 10 11 12 1 2 3 4
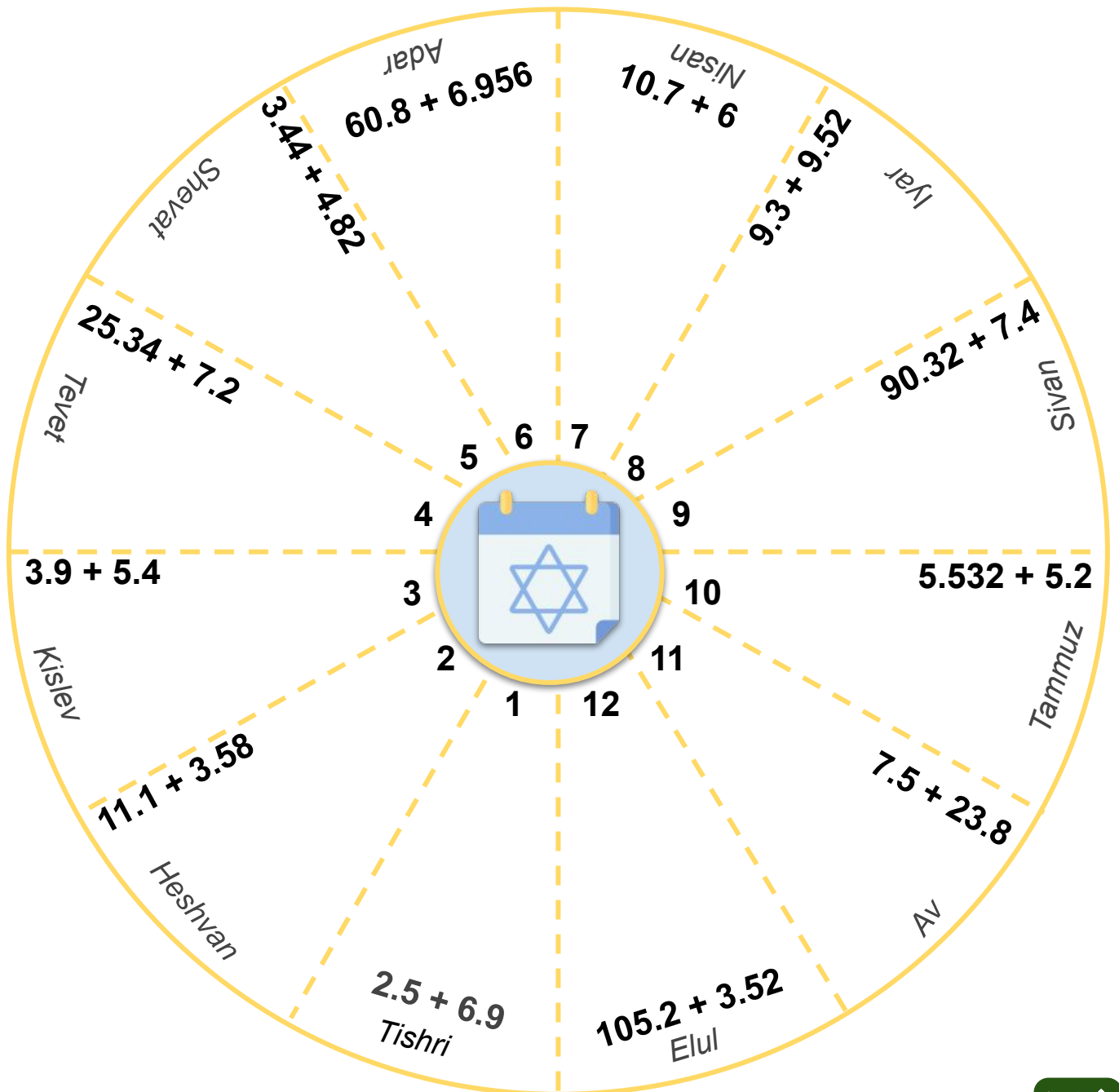
8 DAYS

To rededicate the Temple, the Jews needed oil to light a menorah. They only had enough to last for a day. The oil miraculously lasted for eight days. This is why Hanukkah is celebrated for 8 days. Let us honor this Jewish tradition. Solve the eight subtraction problems. Show your solutions.

1. $8.5 - 3.2 =$

Solution:

2. $6.85 - 3.14 =$

Solution:

3. $12.2 - 10.35 =$

Solution:

4. $25.2 - 11.28 =$

Solution:

5. $36 - 5.25 =$

Solution:

6. $71.28 - 5 =$

Solution:

7. $93.235 - 12.55 =$

Solution:

8. $125.38 - 12.3 =$

Solution:

LIGHTING OF THE MENORAH

It is tradition to light the menorah during Hanukkah. You light a candle each day of Hanukkah from the left to the right. Let us light the menorah. Supply the missing digits in each problem. Show your solution.

1

	3	☐	.	☐	0
+		4	.	6	8
	3	7	.	1	8

Solution:

2

	2	3	6	.	2	5
+	1	☐	8	.	☐	5
	3	8	5	.	2	0

Solution:

3

	☐	6	.	2	☐
-		5	.	2	5
	9	0	.	9	6

Solution:

4

	1	3	2	.	0	5
-		☐	7	.	☐	7
	1	0	4	.	1	8

Solution:

OH CHANUKAH

It is a tradition to sing songs with the family during Hanukkah. Sing along and solve the word problems and show your solutions.

1. While waiting for uncle's family to arrive, they'll sing some Hanukkah songs to cheer everyone up. Uncle is 24.26 km away from their home and they are just 8.2 km away from the destination. What is the total distance from uncle's house to our house?

    Solution:

2. Grandma cooked latkes for the whole family. She made a total of 45.5 latkes and everyone ate 32.45 latkes. How many latkes are left?

    Solution:

Oh Hanukkah, Oh, Hanukkah
Come light the menorah
Come to our party
We'll all dance the hora
Gather 'round the table
We'll give you a treat,
Dreidels to play with and latkes to eat

LITTLE PANCAKES

Latkes are little potato pancakes and is a traditional food for Hanukkah. Below is a detailed ingredient list for a special latke recipe that can serve A LOT of people. Let us try to cook by answering the multiplication problems.
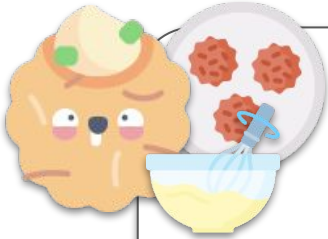
Ingredients:

1. 11.52 x 1.3 = ☐ lbs. of potatoes

2. 2.5 x 2.1 = ☐ cup chopped onion

3. 4.2 x 2.12 = ☐ large egg

4. 23.32 x 2.5 = ☐ matzo meal

5. 3.15 x 2.2 = ☐ tsp kosher salt

6. .125 x 1.3 = ☐ tsp ground pepper

SUFGANIYOT

Another traditional Hanukkah food is *sufganiyot* or jelly filled doughnuts. Mother made a lot of it so let us divide it to the family and neighbors. Solve the division problems and show your solutions.

1. 33.344 ÷ 3.2	Solution:
2. 92.8 ÷ 4	Solution:
3. 70.84 ÷ 2.2	Solution:
4. 9.87 ÷ 4.2	Solution:

HANUKKAH GELT

Family and relatives give out *gelt* or money to each other as a gift during Hanukkah. It is time to collect some Hanukkah gelt. Answer the word problems and show your solutions.

1. Susie received Hanukkah Gelt from her family and relatives. Each family member gave her 25.55 dollars and there are 15 family members. How much is her total gelt money?

   Solution:

2. Aunt Silvia has 322.50 dollars that she has to divide into around 12.5 people (the half is for a baby). How much Hanukkah gelt does each person get?

   Solution:
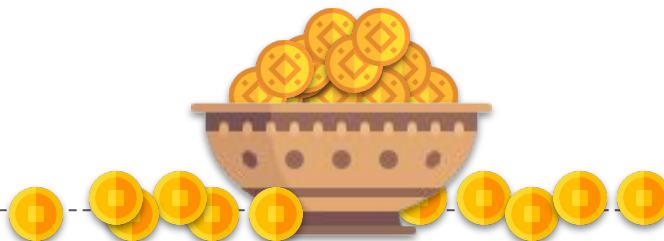
SPIN THE DREIDEL

Now that you have some Hanukkah gelt, let's play some *dreidel*. Calculate how much each player won in the dreidel game and encircle the name of the winner. Answer each problem and show your solutions.

1. **105.50 x .054**   Solution:

    Jessie

2. **3.25 ÷ .02**   Solution:

    Cat

    Gimel

    Hey

    Shin

    Nun

3. **135.2 x 2.3**   Solution:

    Adam

4. **26.85 ÷ .5**   Solution:

    Sam
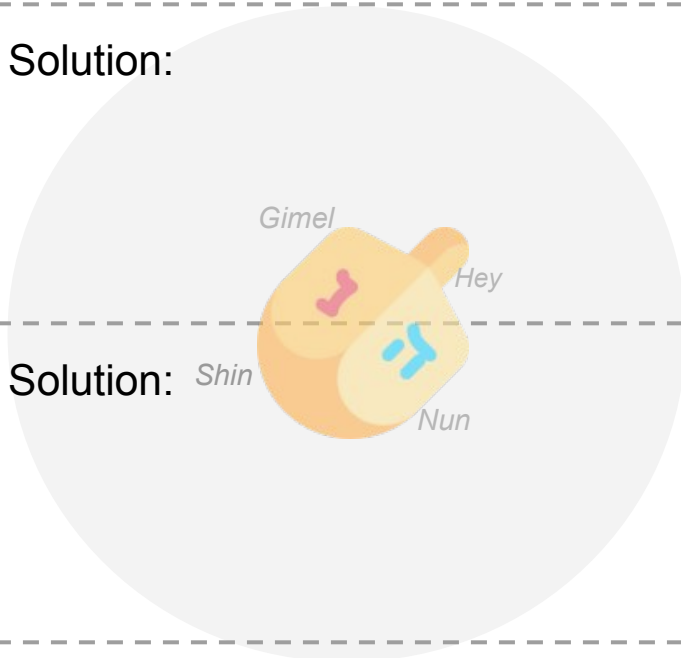
Finally, it's time to eat and enjoy the celebration. Encircle the correct letter for each number and show your solution.

1. If each person at the Hanukkah celebration ate 2.5 jelly doughnuts and there are 30 visitors, how many sufganiyot did Mom make?

    a. 100 sufganiyot   c. 75 sufganiyot

    b. 80 sufganiyot   d. 60 sufganiyot

    Solution:

2. Dad made his special Matzo ball soup. He made 5.25 liters of broth that he would like to divide to 15 people. How many liters of broth does each person get?

    a. .25 L   c. .45 L

    b. .35 L   d. .15 L

    Solution:

ANSWER GUIDE

Activity 1

1. 28.77
2. 5.09
3. 60.65
4. 444.15
5. 145.12

Activity 2

1. 9.4
2. 14.68
3. 9.3
4. 32.54
5. 8.26
6. 67.756
7. 16.7
8. 18.82
9. 97.72
10. 10.732
11. 31.3
12. 108.72

Activity 3

1. 5.3
2. 3.71
3. 1.85
4. 13.92
5. 30.75
6. 66.28
7. 80.685
8. 113.08

Activity 4

1. 32.5
2. 148.95
3. 96.21
4. 27.87

Activity 5

1. 24.26 km + 8.2 km = 32.46 km

2. 45.5 - 32.45 = 13.05 Latkes

Activity 6

1. 14.976
2. 5.25
3. 8.904
4. 58.3
5. 6.93
6. .1625

Activity 7

1. 10.42
2. 23.2
3. 32.2
4. 2.35

Activity 8

1. 25.55 x 15 = 383.25 dollars

2. 322.50 / 12.5 = 25.8 dollars

ANSWER GUIDE

Activity 9

1. 5.697   Winner is: Adam
2. 162.5
3. 310.96
4. 53.7

Activity 10

1. C. 75 Sufganiyot
   30 visitors x 2.5 sufganiyot = 75

2. B. .35 L
   5.25 L / 15 people = .35

Thank you

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