



# ANSWER KEY

GRADE 3 • MODULE 2

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## GRADE 3 • MODULE 2

Place Value and Problem Solving with Units of Measure

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# ANSWER KEY

Name \_\_\_\_\_

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1. The table below shows the times 5 students took to run 100 meters.

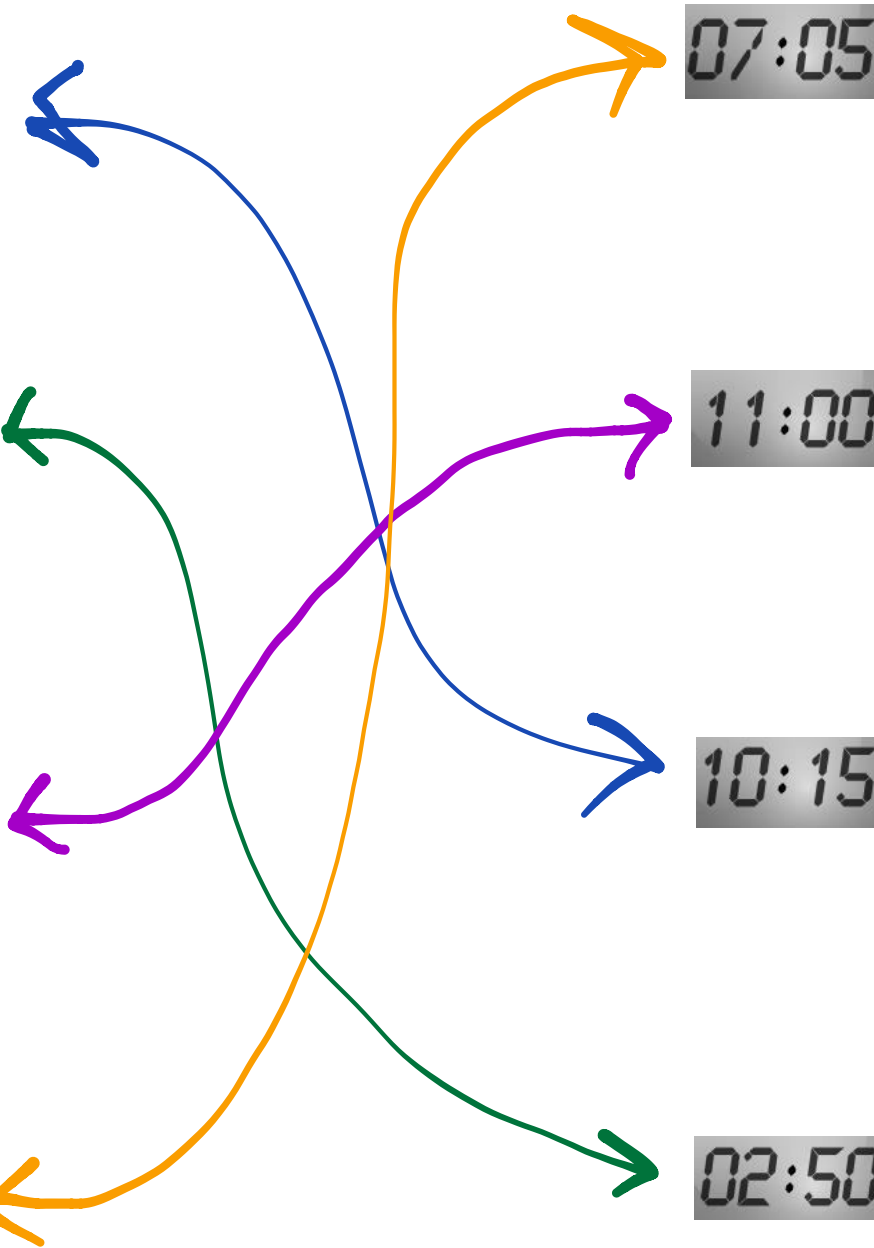
Samantha	19 seconds
Melanie	22 seconds
Chester	26 seconds
Dominique	18 seconds
Louie	24 seconds

- a. Who is the fastest runner? *Dominique*
- b. Who is the slowest runner? *Louie*
- c. How many seconds faster does Samantha run than Louie?  
 $24 - 19 = 5$  *5 seconds faster*

2. List activities at home that take the following times to complete. If you do not have a stop watch, you can use the strategy of counting by “1 Mississippi, 2 Mississippi, 3 Mississippi...”

Time	Activities at home
30 seconds	For example: Tying shoelaces
45 seconds	<i>Sing the alphabet twice.</i>
60 seconds	<i>Wash and dry my hands.</i>

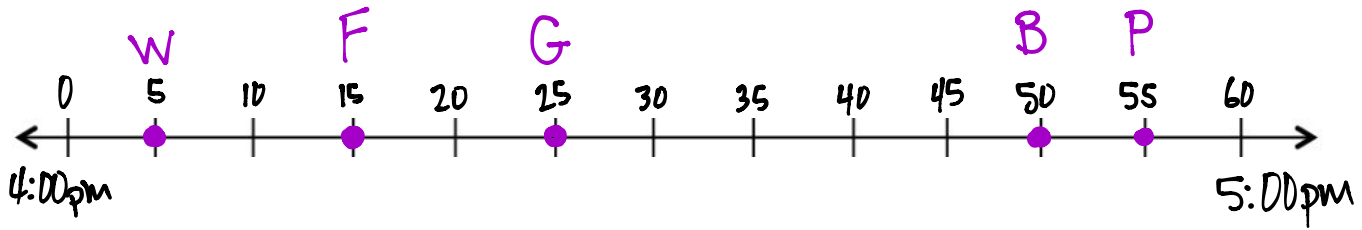
3. Match the analog clock with the correct digital clock.



Name \_\_\_\_\_

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1. Follow the directions to label the number line below.

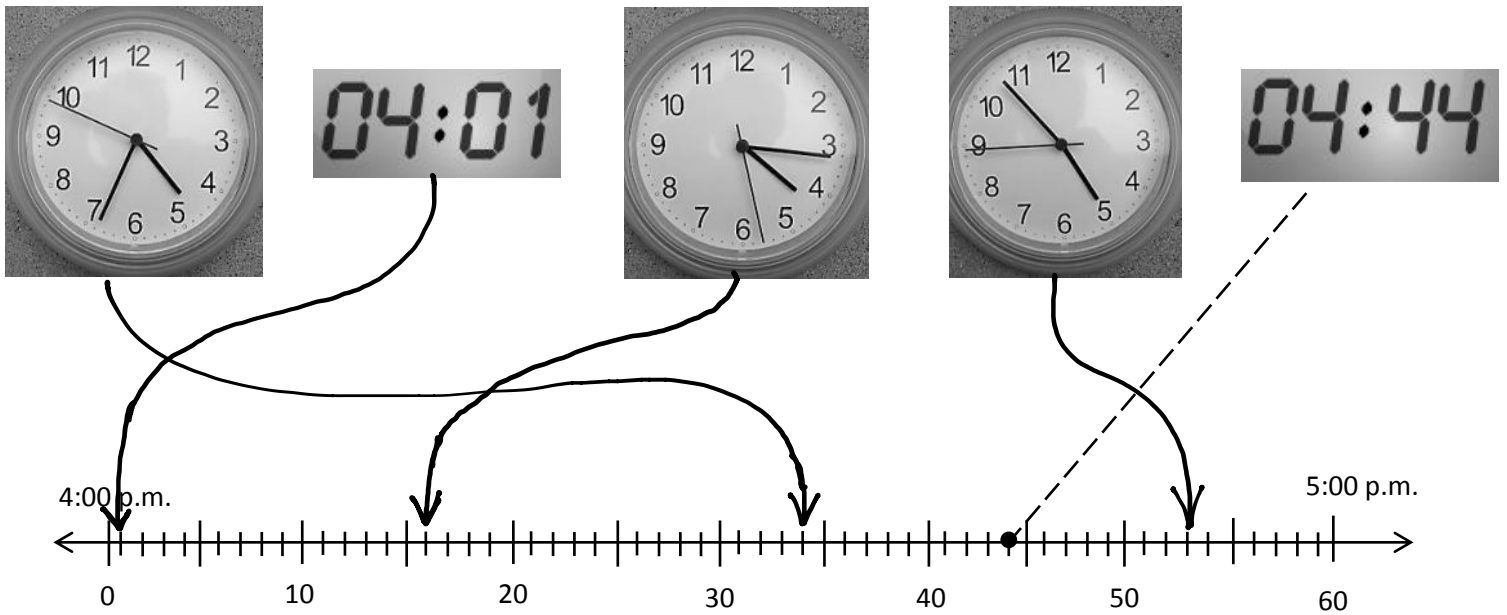


- The basketball team practices between 4:00 p.m. and 5:00 p.m. Label the first and last tick marks as 4:00 p.m. and 5:00 p.m.
- Each interval represents 5 minutes. Count by fives starting at 0, or 4:00 p.m. Label 0, 5, and 10 below the number line up to 5:00 p.m.
- The team warms up at 4:05 p.m. Plot a point on the number line to represent this time. Above the point write *W*.
- The team shoots free throws at 4:15 p.m. Plot a point on the number line to represent this time. Above the point write *F*.
- The team plays a practice game at 4:25 p.m. Plot a point on the number line to represent this time. Above the point write *G*.
- The team has a water break at 4:50 p.m. Plot a point on the number line to represent this time. Above the point write *B*.
- The team reviews their plays at 4:55 p.m. Plot a point on the number line to represent this time. Above the point write *P*.

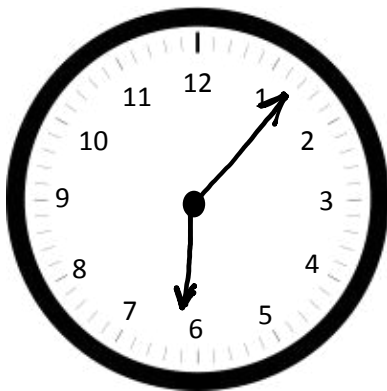
Name \_\_\_\_\_

Date \_\_\_\_\_

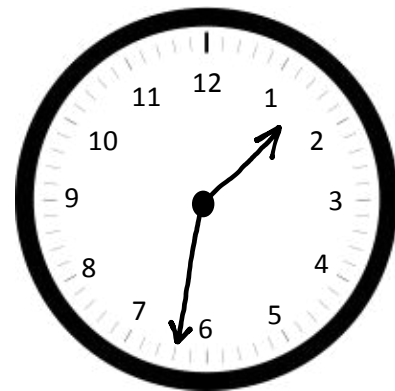
1. Plot points on the number line for each time shown on a clock below. Then draw lines to match the clocks to the points.



2. Julie eats dinner at 6:07 p.m. Draw hands on the clock below to show what time Julie eats dinner.



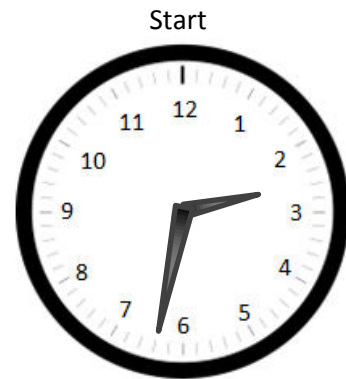
3. P.E. starts at 1:32 p.m. Draw hands on the clock below to show what time P.E. starts.



4. The clock shows what time Zachary starts playing with his action figures.

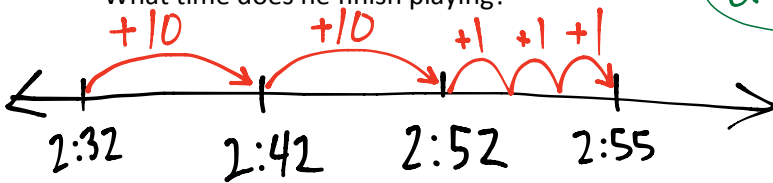
a. What time does he start playing with his action figures?

2:32

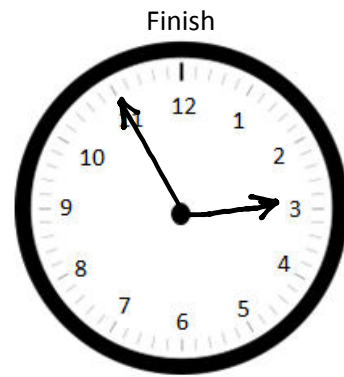


b. He plays with his action figures for 23 minutes. What time does he finish playing?

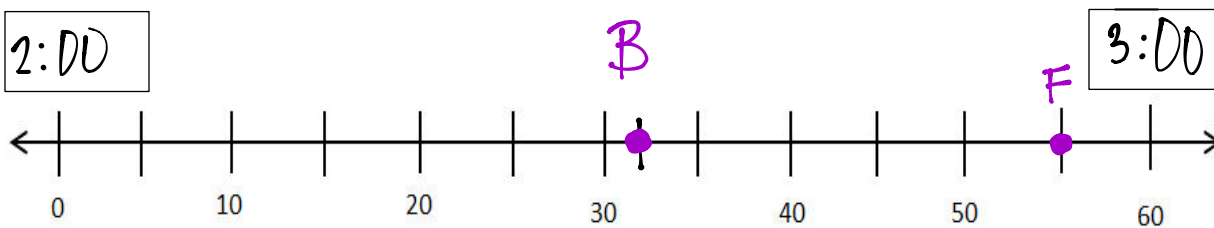
2:55



c. Draw hands on the clock to the right to show what time Zachary finishes playing.



d. Label the first and last tick marks with 2:00 p.m. and 3:00 p.m. Then plot Zachary's start and finish times. Label his start time with a *B* and his finish time with an *F*.



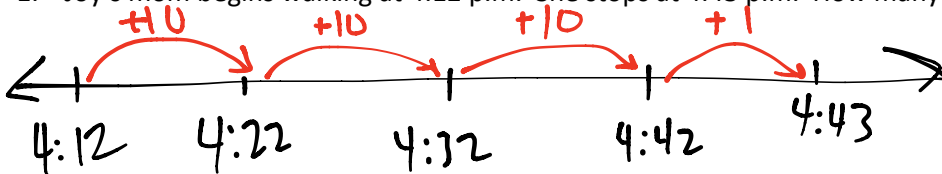
Name \_\_\_\_\_

Date \_\_\_\_\_

Record your homework start time on the clock in Problem 6.

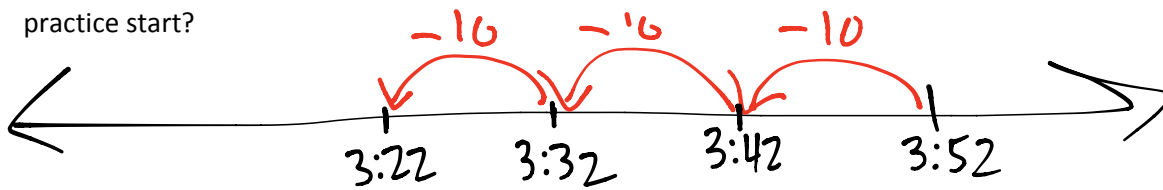
Directions: Use a number line to answer Problems 1 through 4.

1. Joy’s mom begins walking at 4:12 p.m. She stops at 4:43 p.m. How many minutes does she walk?



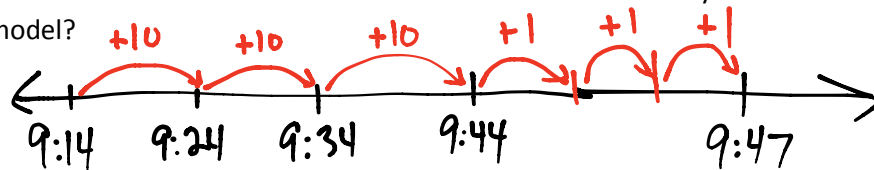
Joy’s mom walks for 31 minutes.

2. Cassie finishes softball practice at 3:52 p.m. after practicing for 30 minutes. What time does Cassie’s practice start?



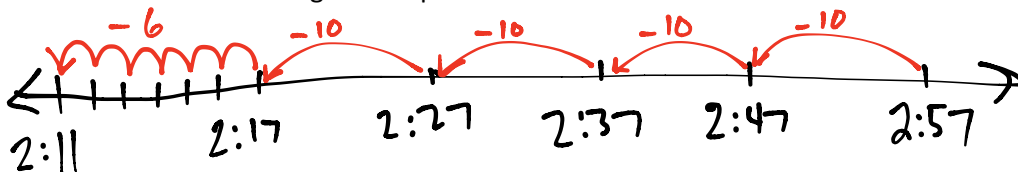
Cassie’s practice starts at 3:22.

3. Jordie builds a model from 9:14 a.m. to 9:47 a.m. How many minutes does Jordie spend building his model?



Jordie builds for 33 minutes.

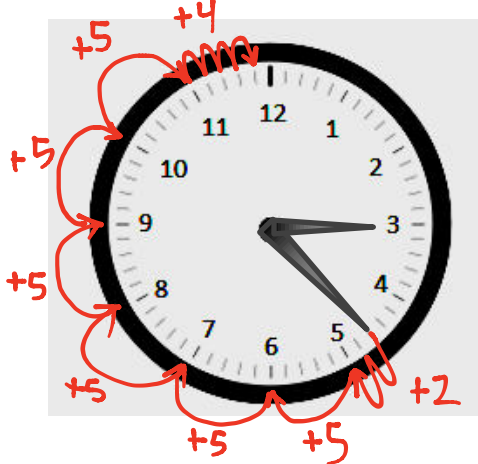
4. Cara finishes reading at 2:57 p.m. She reads for a total of 46 minutes. What time did Cara start reading?



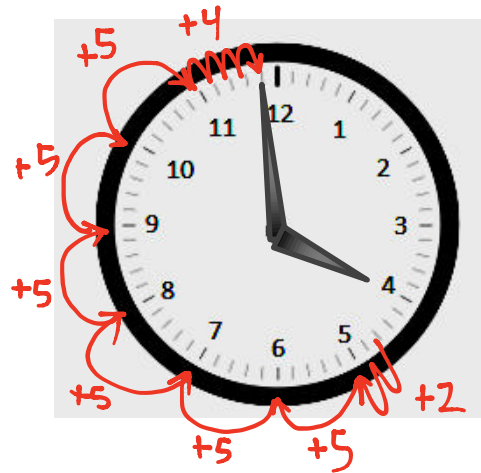
Cara starts reading at 2:11 p.m.

5. Jenna and her mom take the bus to the mall. The clocks below show when they leave their house and when they arrive at the mall. How many minutes does it take them to get to the mall?

Time when they leave home:

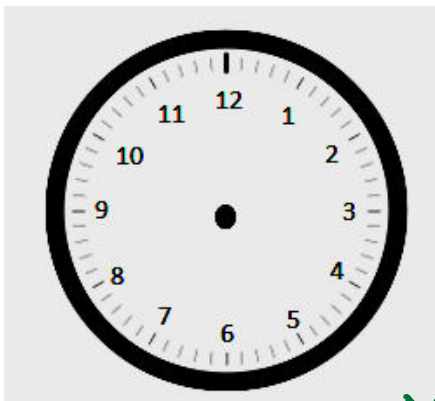


Time when they arrive at the mall:

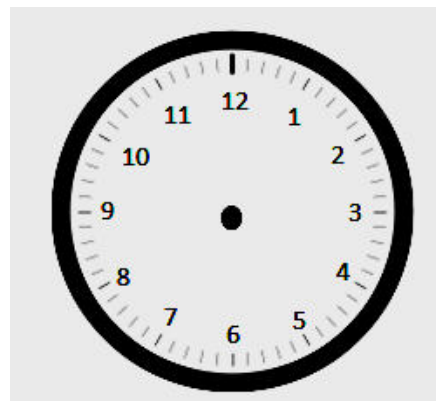


36 min

6. Record your homework start time:



- Record the time you finish Problems 1–5:



Answers will vary.

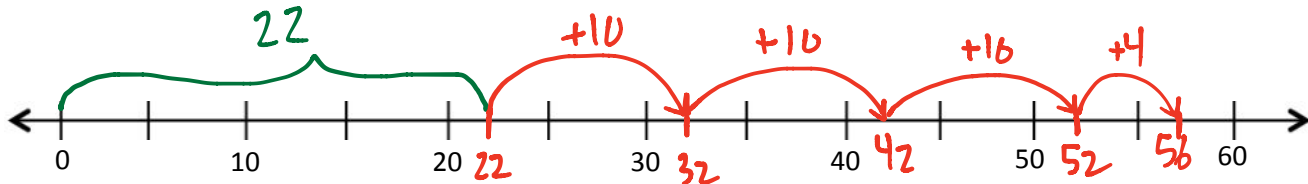
How many minutes did you work on Problems 1–5?



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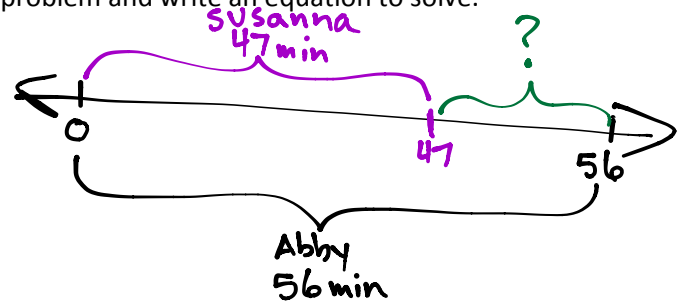
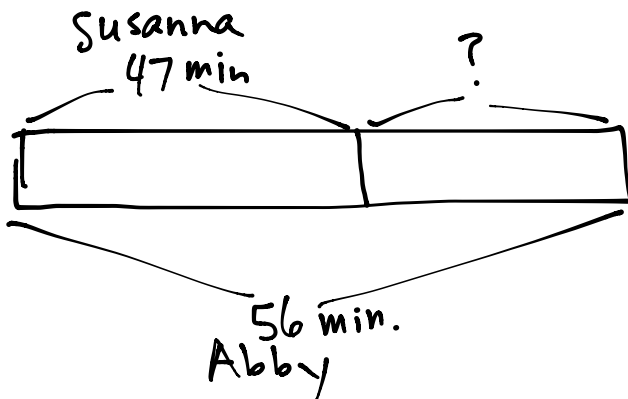
1. Abby spent 22 minutes doing her science project yesterday and 34 minutes doing it today. How many minutes does Abby spend working on her science project altogether? Model the problem on the number line and write an equation to solve.



$$22 + 34 = 56$$

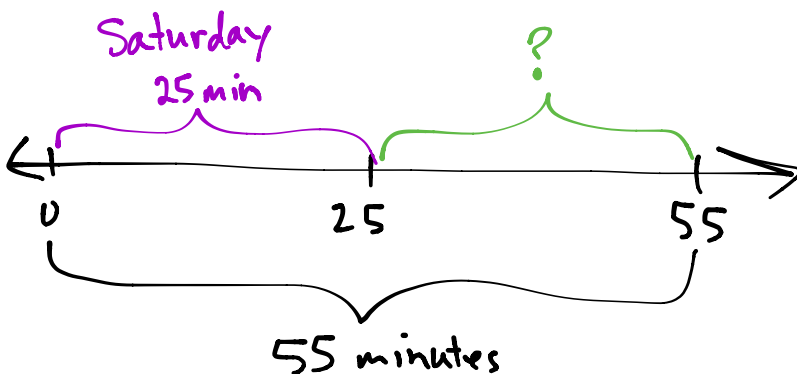
Abby spends 56 minutes.

2. Susanna spends a total of 47 minutes working on her project. How many more minutes than Susanna does Abby spend working? Draw a number line to model the problem and write an equation to solve.



$$56 - 47 = 9 \text{ minutes}$$

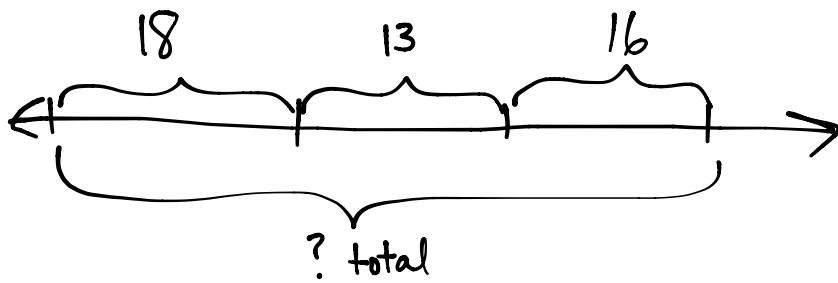
3. Peter practices violin for a total of 55 minutes over the weekend. He practices 25 minutes on Saturday. How many minutes does he practice on Sunday?



$$55 - 25 = 30$$

30 minutes on Sunday

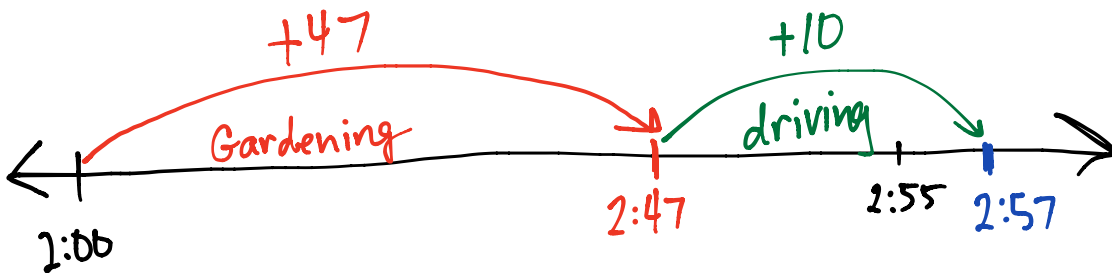
4. a. Marcus gardens. He pulls weeds for 18 minutes, waters for 13 minutes, and plants for 16 minutes. How many total minutes does he spend gardening?



$$\begin{array}{r} 18 \\ 13 \\ + 16 \\ \hline 47 \end{array}$$

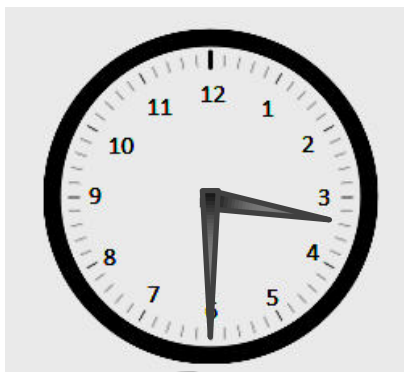
47 minutes

4. b. Marcus wants to watch a movie that starts at 2:55 p.m. It takes 10 minutes to drive to the theater. If Marcus starts the yard work at 2:00 p.m., can he make it on time for the movie? Explain your reasoning.

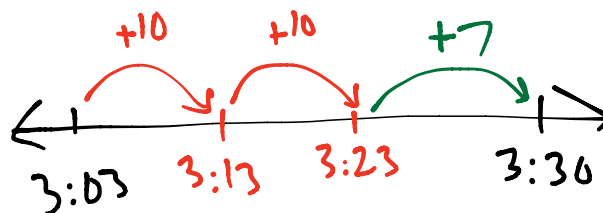


Marcus will be 2 minutes late.

5. Arelli takes a short nap after school. As she falls asleep the clock reads 3:03 p.m. She wakes up at the time shown below. How long is Arelli's nap?



3:30



27 minute nap

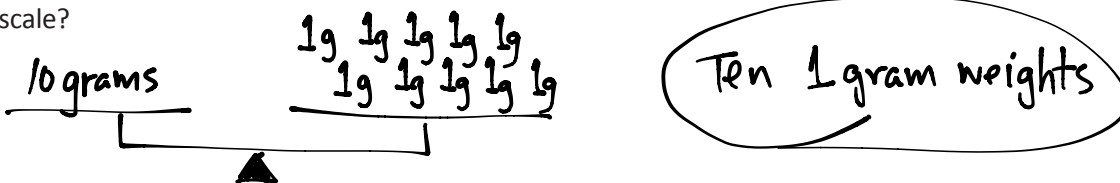
Name \_\_\_\_\_

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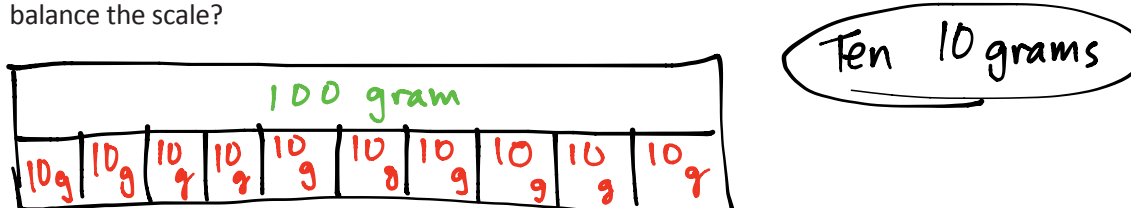
1. Use the chart to help you answer the following questions:

1 kilogram	100 grams	10 grams	1 gram

a. Isaiah puts a **10 gram** weight on a pan balance. How many **1 gram** weights does he need to balance the scale?



b. Next, Isaiah puts a **100 gram** weight on a pan balance. How many **10 gram** weights does he need to balance the scale?



c. Isaiah then puts a **kilogram** weight on a pan balance. How many **100 gram** weights does he need to balance the scale?



d. What pattern do you notice in Parts (a–c)?

Ten weights in one place value column equals the same as 1 weight in the next column to the left.

2. Read each digital scale. Write each weight using the word *kilogram* or *gram* for each measurement.



3 kilograms



6 kilograms



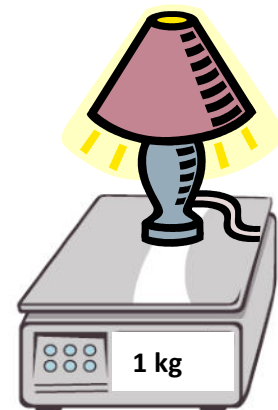
450 grams



907 grams



11 kilograms



1 kilogram

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Match the object with its approximate weight.

The image shows a matching exercise. On the left, there are four objects in boxes: a water bottle, a paperclip, four pennies, and an apple. On the right, there are four weight labels: 100 grams, 10 grams, 1 gram, and 1 kilogram. Blue lines connect the objects to the weights: the water bottle is connected to 100 grams, the paperclip to 10 grams, the four pennies to 1 gram, and the apple to 1 kilogram.

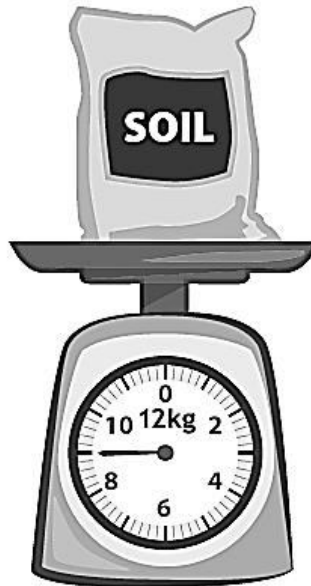
2. Alicia and Jeremy weigh a cell phone on a digital scale. They write down 113 but forget to record the unit. Which unit of measurement is correct? How do you know?

113 grams. 113 kilograms would be very heavy!

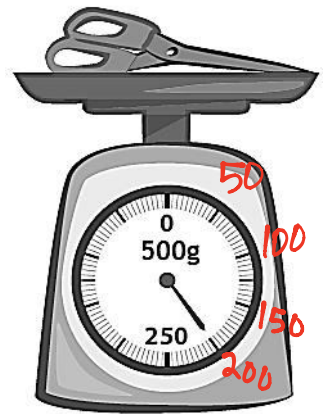
3. Read and write the weights below. Write the word *kilogram* or *gram* with the measurement.



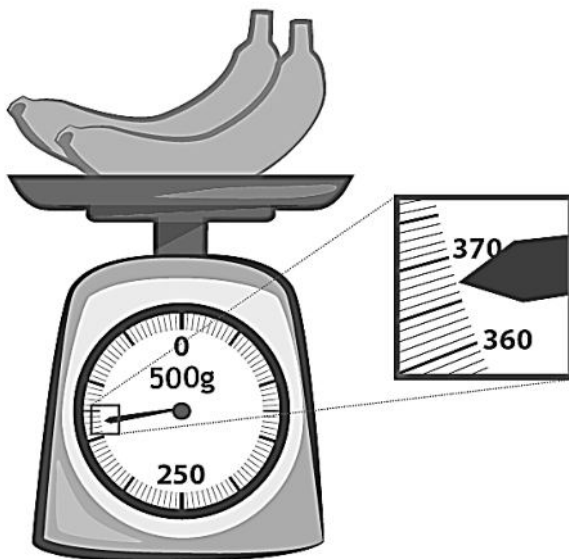
25 kilograms



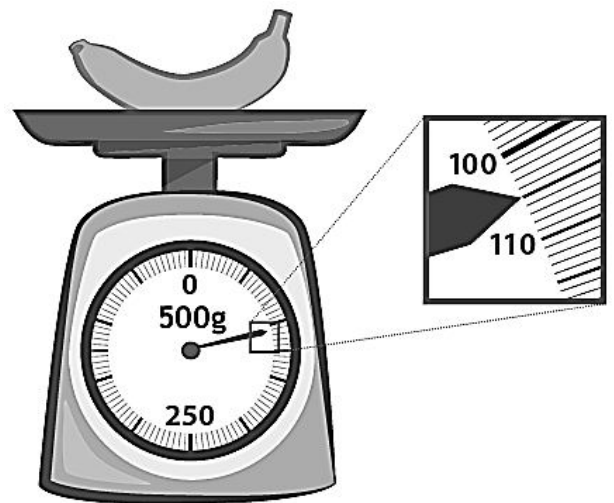
9 kilograms



200 grams



367 grams



105 grams

Name \_\_\_\_\_

Date \_\_\_\_\_

1. The weights of 3 fruit baskets are shown below.



Basket A  
12kg



Basket B  
8kg

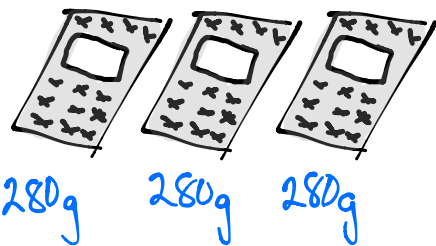


Basket C  
16kg

- a. Basket C is the heaviest.
- b. Basket B is the lightest.
- c. Basket A is 4 kilograms heavier than Basket B.
- d. What is the total weight of all three baskets?

$$12 + 8 + 16 = 36 \text{ grams}$$

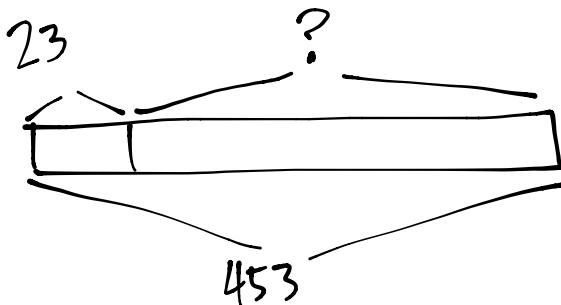
2. Each journal weighs about 280 grams. What is total weight of 3 journals?



$$\begin{array}{r} 280 \\ 280 \\ + 280 \\ \hline 840 \end{array}$$

840 grams

3. Ms. Rios buys 453 grams of strawberries. She has 23 grams left after making smoothies. How many grams of strawberries did she use?



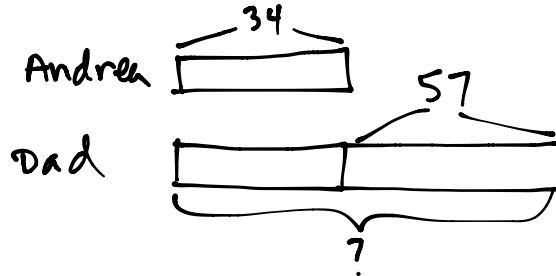
$$\begin{array}{r} 453 \\ - 23 \\ \hline 430 \end{array}$$

430 grams

4. Andrea's dad is 57 kilograms heavier than Andrea. Andrea weighs 34 kilograms.

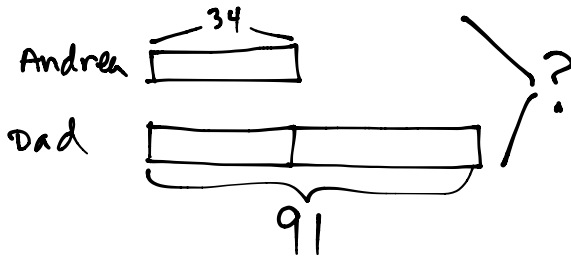
a. How much does Andrea's dad weigh?

$$\begin{array}{r} 34 \\ + 57 \\ \hline 91 \end{array}$$



91 kilograms

b. How much do Andrea and her dad weigh in total?

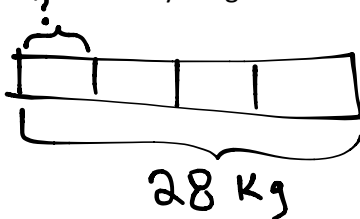


$$\begin{array}{r} 91 \\ + 34 \\ \hline 125 \end{array}$$

125 kilograms

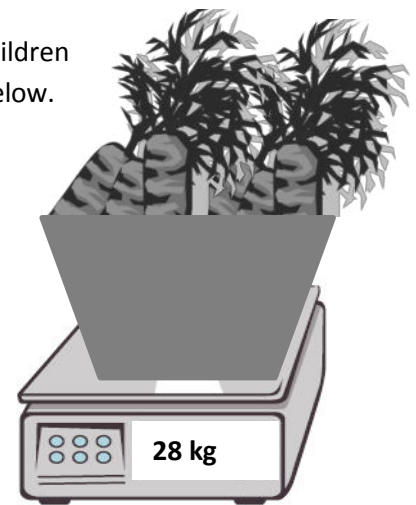
5. Jennifer's grandmother buys carrots at the farm stand. She and her 3 grandchildren equally share the carrots. The total weight of the carrots she buys is shown below.

a. How many kilograms of carrots will Jennifer get?

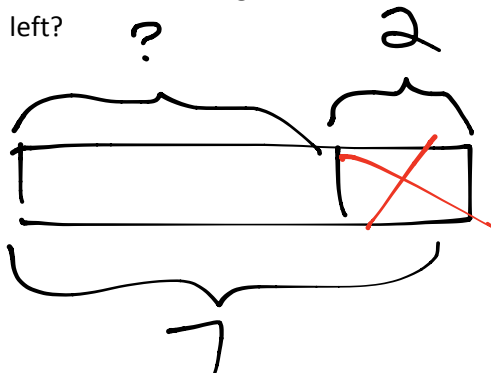


$$28 \div 4 = 7$$

Jennifer will get 7 kg of carrots.



b. Jennifer uses 2 kilograms of carrots to bake muffins. How many kilograms of carrots does she have left?



$$7 - 2 = 5$$

5 kilograms



Name \_\_\_\_\_

Date \_\_\_\_\_

1. Find containers at home that have a capacity of about 1 liter. Use the labels on containers to help you identify them.

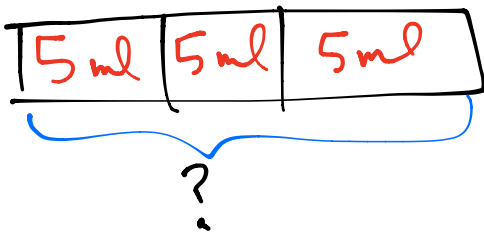
a.

Name of Container
Example: Carton of Orange Juice
1 quart of milk is $\approx$ 1 liter
Water bottle
Answers will vary

- b. Sketch the containers. How do their size and shape compare?

They have similar sizes, but their shapes are different.

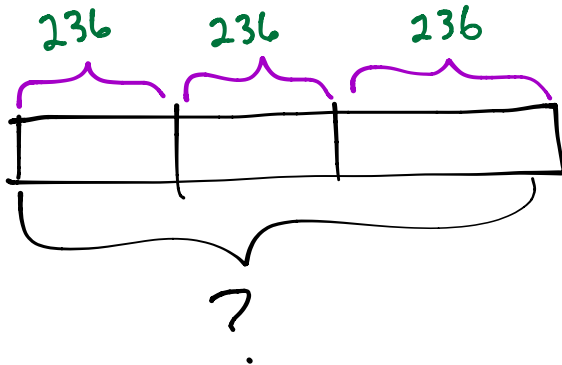
2. The doctor prescribes Mrs. Larson 5 milliliters of medicine each day for 3 days. How many milliliters of medicine will she take altogether?



$$5 \times 3 = 15$$

15 milliliters

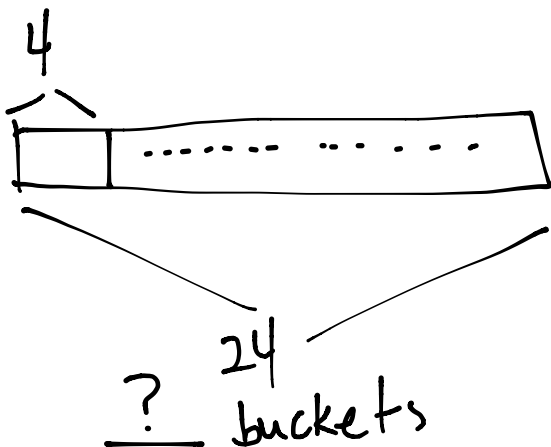
3. Mrs. Goldstein pours 3 juice boxes into a bowl to make punch. Each juice box holds 236 milliliters. How much juice does Mrs. Goldstein pour into the bowl?



$$\begin{array}{r} 236 \\ 236 \\ + 236 \\ \hline 708 \end{array}$$

708 milliliters

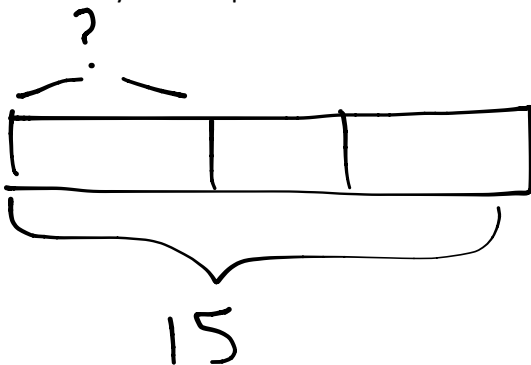
4. Daniel's fish tank holds 24 liters of water. He uses a 4-liter bucket to fill the tank. How many buckets of water are needed to fill the tank?



$$\begin{array}{r} 4 + 4 + 4 + 4 + 4 + 4 \\ \hline 8 + 8 + 8 \\ \hline 16 + 8 = 24 \end{array}$$

6 buckets

5. Sheila buys 15 liters of paint to paint her house. She pours the paint equally into 3 buckets. How many liters of paint are in each bucket?



$$15 \div 3 = 5$$

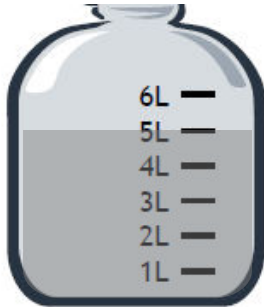
5 liters in each bucket

NOTE: Students will not know division at this point.

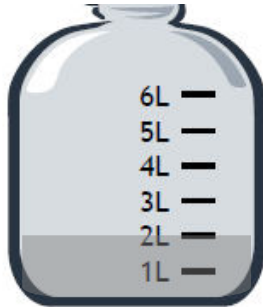
Name \_\_\_\_\_

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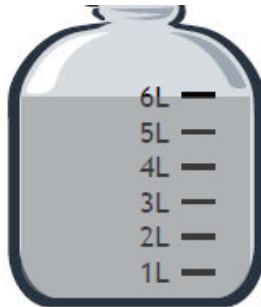
1. How much liquid is in each container?



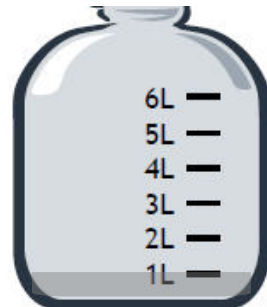
5 liters



2 liters



6 liters



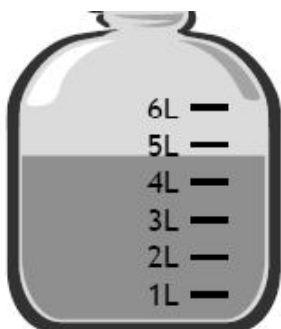
1 liter

2. Jon pours the contents of Container 1 into Container 3. How much liquid is in Container 3 after he pours the liquid?

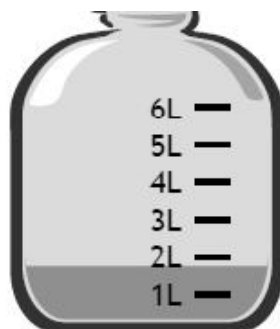
$$5 \text{ liters} + 6 \text{ liters} = 11 \text{ liters}$$

Reality check: It looks like Container 3 would overflow if we poured Container 1 into it. ☺

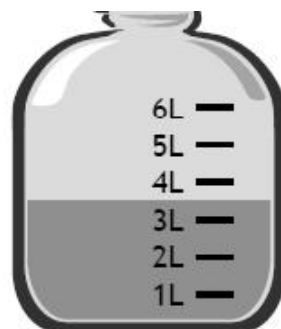
3. Estimate the amount of liquid in each container to the nearest liter.



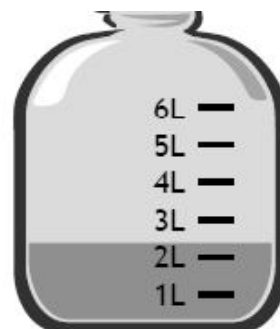
5 liters



2 liters



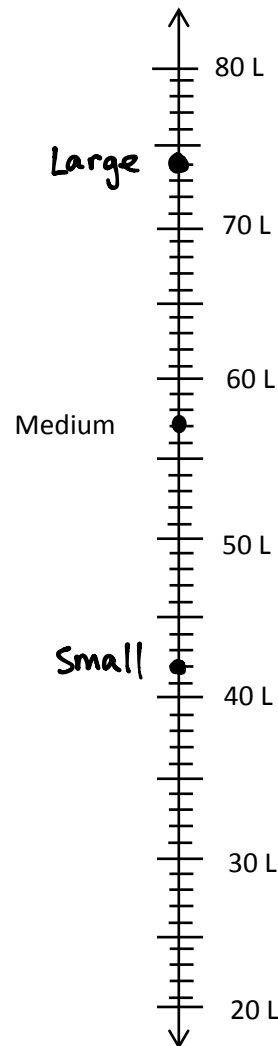
4 liters



2 liters

4. Kristen is comparing the capacity of gas tanks of cars. Use the chart below to answer the questions.

Size of car	Capacity in liters
Large	74
Medium	57
Small	42



- a. Label the number line to show the capacity of each gas tank. The medium car has been done for you.

- b. Which car's gas tank has the greatest capacity?

The large car.

- c. Which car's gas tank has the least capacity?

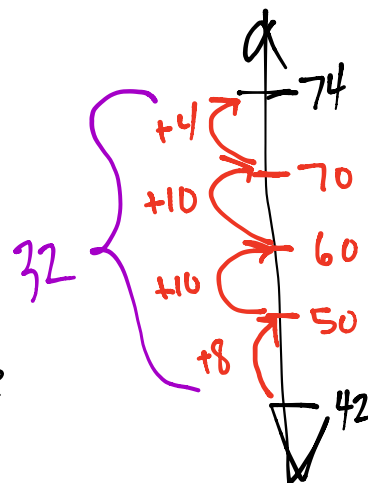
The small car.

- d. Kristen's car has a gas tank capacity of about 60 liters. Which car from the chart has about the same capacity as Kristen's car?

The medium car.

- e. Use the number line to find how many more liters the large car's tank holds than the small car's tank.

The large tank holds 32 liters more than the small tank.



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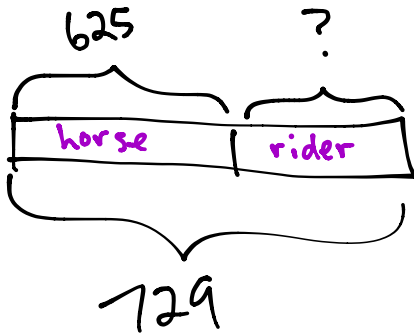
1. Karina goes on a hike. She brings a notebook, a pencil, and a camera. The weight of each item is shown in the chart. What is the total weight of all three items?

Item	Weight
Notebook	312 g
Pencil	10 g
Camera	365 g

$$\begin{array}{r}
 312 \\
 10 \\
 + 365 \\
 \hline
 687
 \end{array}$$

The total weight is 687 grams.

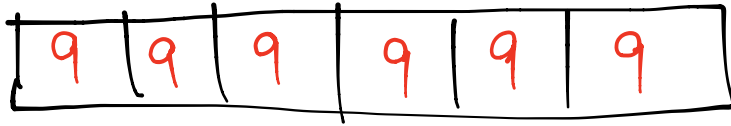
2. Together a horse and its rider weigh 729 kilograms. The horse weighs 625 kilograms. How much does the rider weigh?



$$\begin{array}{r}
 729 \\
 - 625 \\
 \hline
 104
 \end{array}$$

The rider weighs 104 kilograms.

3. Theresa’s soccer team fills up 6 water coolers before the game. Each water cooler holds 9 liters of water. How many liters of water did they fill?



$$6 \times 9 = 54$$

54 liters

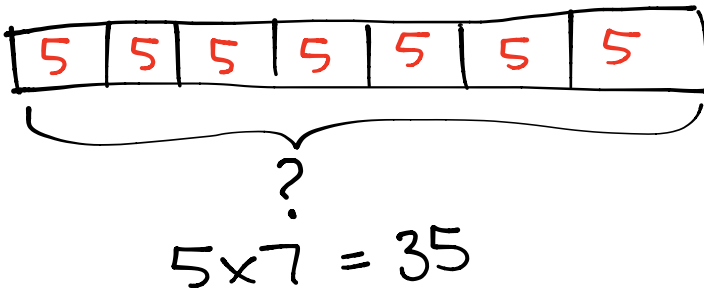
4. Dwight purchased 48 kilograms of fertilizer for his garden. He needs 6 kilograms of fertilizer for each bed of vegetables. How many beds of vegetables can he fertilize?



$$6 \times 8 = 48$$

8 beds

5. Nancy bakes 7 cakes for the school bake sale. Each cake requires 5 milliliters of oil. How many milliliters of oil does she use?



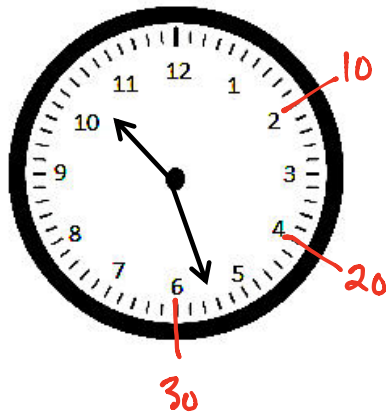
35 milliliters

Name \_\_\_\_\_ Date \_\_\_\_\_

1. Complete the chart. Choose objects and use a ruler/meter stick to complete the last two on your own.

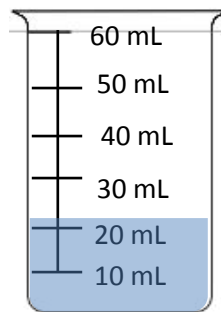
Object	Measurement (in cm)	The object measures between which two tens?	Length Rounded to the Nearest 10 cm
Length of desk	66 cm	<u>60</u> and <u>70</u> cm	<u>70 cm</u>
Width of desk	48 cm	<u>40</u> and <u>50</u> cm	<u>50 cm</u>
Width of door	81 cm	<u>80</u> and <u>90</u> cm	<u>80 cm</u>
<i>Answers will vary</i>		_____ and _____ cm	
		_____ and _____ cm	

2. Gym class ends at 10:27 a.m. Round the time to the nearest 10 minutes.



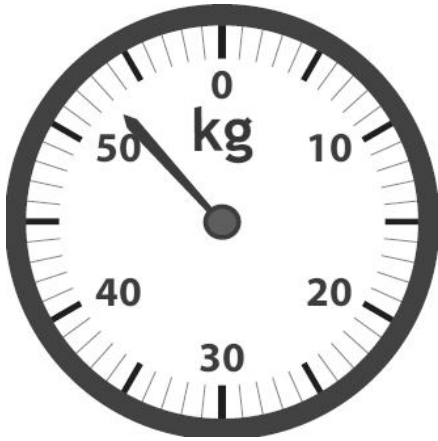
Gym class ends at about 10:30 a.m.

3. Measure the liquid in the beaker to the nearest 10 milliliters.



There are about 20 milliliters in the beaker.

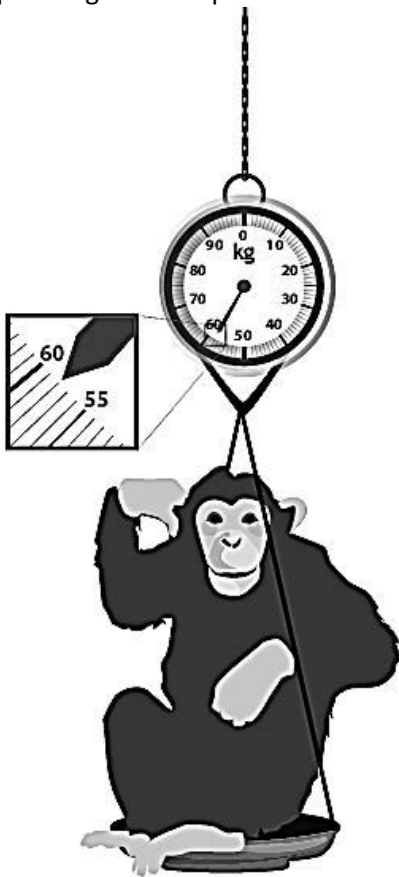
4. Mrs. Santos' weight is shown on the scale. Round the weight to the nearest 10 kilograms.



Mrs. Santos' weight is 53 kilograms.

Mrs. Santos weighs about 50 kilograms.

5. A zookeeper weighs a chimp. Round the chimp's weight to the nearest 10 kilograms.



The chimp's weight is 58 kilograms.

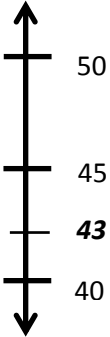
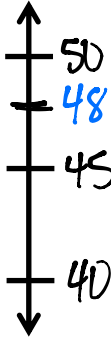

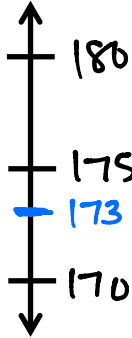
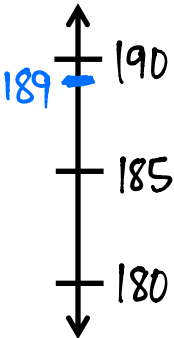
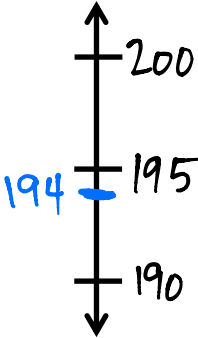
The chimp weighs about 60 kilograms.




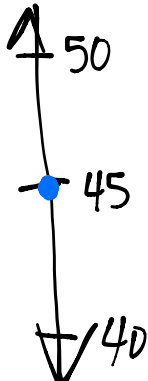

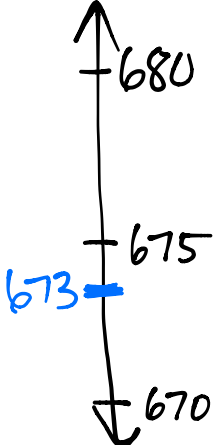
Name \_\_\_\_\_

Date \_\_\_\_\_

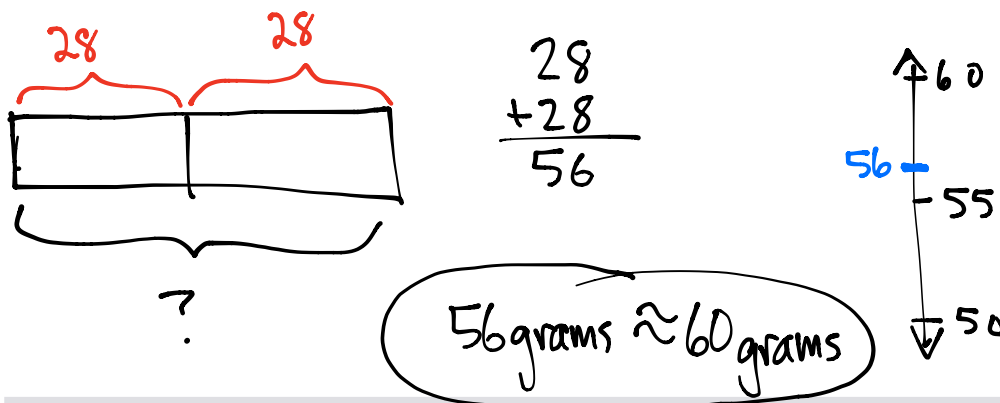
1. Round to the nearest ten. Use the number line to model your thinking.

<p>a. <math>43 \approx \underline{40}</math></p> 	<p>b. <math>48 \approx \underline{50}</math></p> 
<p>c. <math>73 \approx \underline{70}</math></p> 	<p>d. <math>173 \approx \underline{170}</math></p> 
<p>e. <math>189 \approx \underline{190}</math></p> 	<p>f. <math>194 \approx \underline{190}</math></p> 

2. Round the weight of each item to the nearest 10 grams. Draw numbers lines to model your thinking.

	Number Line	Round to the nearest 10 grams:
 <p>Cereal Bar: 45 grams</p>		50 grams
 <p>Loaf of bread: 673 grams</p>		670 grams

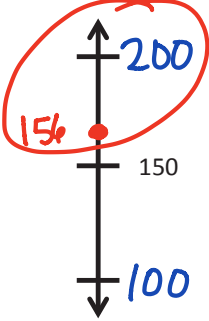
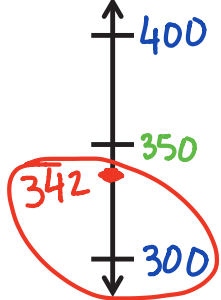
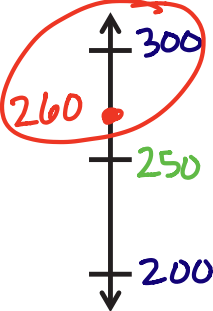
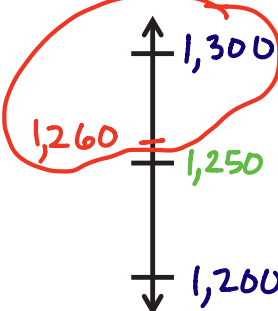
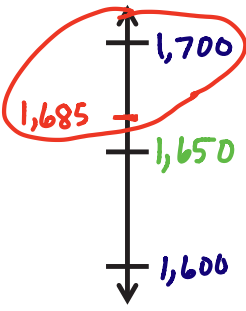
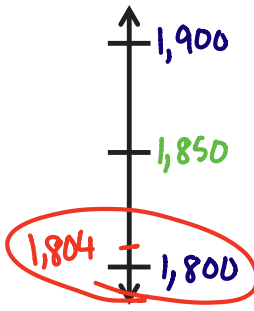
3. The Garden Club plants rows of carrots in the garden. One seed packet weighs 28 grams. Round the total weight of 2 seed packets to the nearest 10 grams. Model your thinking using a number line.



Name \_\_\_\_\_

Date \_\_\_\_\_

1. Round to the nearest hundred. Use the number line to model your thinking.

<p>a. <math>156 \approx \underline{200}</math></p> 	<p>b. <math>342 \approx \underline{300}</math></p> 
<p>c. <math>260 \approx \underline{300}</math></p> 	<p>d. <math>1,260 \approx \underline{1,300}</math></p> 
<p>e. <math>1,685 \approx \underline{1,700}</math></p> 	<p>f. <math>1,804 \approx \underline{1,800}</math></p> 

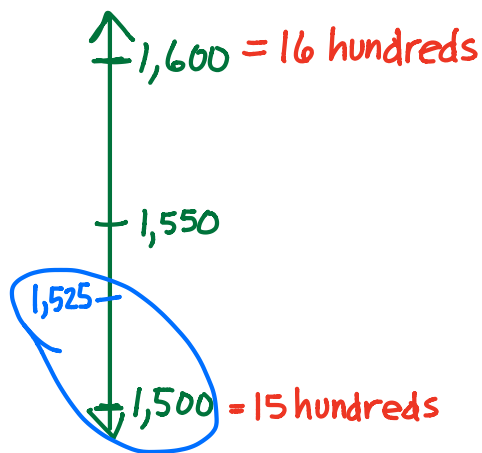
2. Complete the chart.

a. Luis has 217 baseball cards. Round the number of cards Luis has to the nearest hundred.	$217 \text{ cards} \approx 200 \text{ cards}$
b. There were 462 people sitting in the audience. Round the number of people to the nearest hundred.	$462 \text{ people} \approx 500 \text{ people}$
c. A bottle of juice holds 386 milliliters. Round the capacity to the nearest 100 milliliters.	$386 \text{ mL} \approx 400 \text{ mL}$
d. A book weighs 727 grams. Round the weight to the nearest 100 grams.	$727 \text{ g} \approx 700 \text{ g}$
e. Joanie's parents spent \$1,260 on two plane tickets. Round the total to the nearest \$100.	$\$1,260 \approx \$1,300$

3. Circle the numbers that round to 400 when rounding to the nearest hundred.

368      342      420      492      449      464

4. There are 1,525 pages in a book. Julia and Kim round the number of pages to the nearest hundred. Julia says it is one thousand, five hundred. Kim says it is 15 hundreds. Who is correct? Explain your thinking.



$1,525$  rounded to the nearest hundred is  $1,500$ . And  $1,500$  is the same value as 15 hundreds. Julia and Kim are both correct.

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Find the sums below. Choose mental math or the algorithm.

a.  $75 \text{ cm} + 7 \text{ cm}$

$$\begin{array}{r} \phantom{75} \hat{5} \phantom{2} \\ 75 + 5 = 80 \\ 80 + 2 = 82 \text{ cm} \end{array}$$

c.  $362 \text{ mL} + 229 \text{ mL}$

$$\begin{array}{r} 362 \\ + 229 \\ \hline 591 \end{array} \quad 591 \text{ mL}$$

e.  $451 \text{ mL} + 339 \text{ mL}$

$$\begin{array}{r} 451 \\ + 339 \\ \hline 790 \end{array} \quad 790 \text{ mL}$$

b.  $39 \text{ kg} + 56 \text{ kg}$

$$\begin{array}{r} 35 \hat{4} \\ 56 + 4 = 60 \\ 60 + 35 = 95 \end{array} \quad 95 \text{ kg}$$

d.  $283 \text{ g} + 92 \text{ g}$

$$\begin{array}{r} 283 \\ + 92 \\ \hline 375 \end{array} \quad 375 \text{ g}$$

f.  $149 \text{ L} + 331 \text{ L}$

$$\begin{array}{r} \phantom{149} \hat{1} \phantom{330} \\ 149 + 1 = 150 \\ 150 + 330 = 480 \end{array} \quad 480 \text{ L}$$

2. The liquid volume of five drinks is shown below.

Drink	Liquid Volume
Apple juice	125 mL
Milk	236 mL
Water	248 mL
Orange juice	174 mL
Fruit punch	208 mL

a. Jen drinks the apple juice and the water. How many milliliters does she drink in all?

$$\begin{array}{r} 125 \\ + 248 \\ \hline 373 \end{array}$$

Jen drinks 373 mL in all.

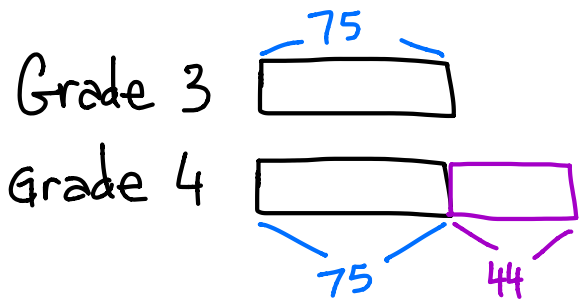
Jen drinks 373 mL.

b. Kevin drinks the milk and the fruit punch. How many milliliters does he drink in all?

$$\begin{array}{r} 236 \\ + 208 \\ \hline 444 \end{array}$$

Kevin drinks 444 mL in all.

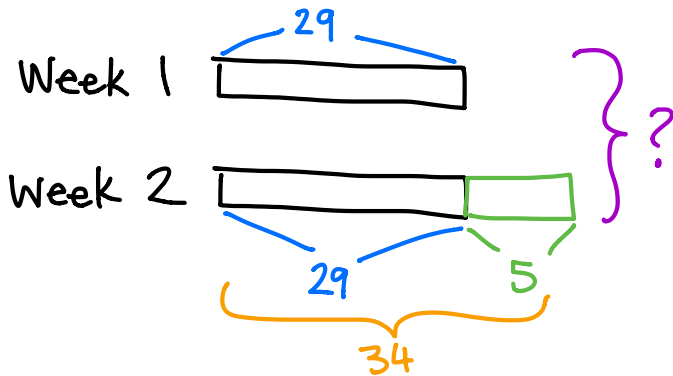
3. There are 75 students in Grade 3. There are 44 more students in Grade 4 than in Grade 3. How many students are in Grade 4?



$$\begin{array}{r} 75 \\ + 44 \\ \hline 119 \end{array}$$

There are 119 students in Grade 4.

4. Mr. Green's sunflower grew 29 centimeters in one week. The next week it grew 5 centimeters more than the previous week. What is the total number of centimeters the sunflower grew in 2 weeks?



$$\begin{array}{r} 29 \\ + 34 \\ \hline 63 \end{array}$$

The sunflower grew 63 cm in 2 weeks.

5. Kylie records the weights of 3 objects as shown below. Which 2 objects can she put on a pan balance to equal the weight of a 460 gram bag? Show how you know.

Paperback Book	Banana	Bar of Soap
343 grams	108 grams	117 grams

$$\begin{array}{r} 343 \\ + 117 \\ \hline 460 \end{array}$$

My first guess was the paperback and the soap. I picked these because I wanted the sum's one's place to be zero.  $3 + 7$  does the trick. Then I confirmed it by adding  $343 + 117$ .

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Find the sums below.

a.  $47\text{ m} + 8\text{ m}$

$$\begin{array}{r} 47\text{ m} \\ + 8\text{ m} \\ \hline 55\text{ m} \end{array}$$

b.  $47\text{ m} + 38\text{ m}$

$$\begin{array}{r} 47\text{ m} \\ + 38\text{ m} \\ \hline 85\text{ m} \end{array}$$

c.  $147\text{ m} + 383\text{ m}$

$$\begin{array}{r} 147\text{ m} \\ + 383\text{ m} \\ \hline 530\text{ m} \end{array}$$

d.  $63\text{ mL} + 9\text{ mL}$

$$\begin{array}{r} 63\text{ mL} \\ + 9\text{ mL} \\ \hline 72\text{ mL} \end{array}$$

e.  $463\text{ mL} + 79\text{ mL}$

$$\begin{array}{r} 463\text{ mL} \\ + 79\text{ mL} \\ \hline 542\text{ mL} \end{array}$$

f.  $463\text{ mL} + 179\text{ mL}$

$$\begin{array}{r} 463\text{ mL} \\ + 179\text{ mL} \\ \hline 642\text{ mL} \end{array}$$

g.  $368\text{ kg} + 263\text{ kg}$

$$\begin{array}{r} 368\text{ kg} \\ + 263\text{ kg} \\ \hline 631\text{ kg} \end{array}$$

h.  $508\text{ kg} + 293\text{ kg}$

$$\begin{array}{r} 508\text{ kg} \\ + 293\text{ kg} \\ \hline 801\text{ kg} \end{array}$$

i.  $103\text{ kg} + 799\text{ kg}$

$$\begin{array}{r} 103\text{ kg} \\ + 799\text{ kg} \\ \hline 902\text{ kg} \end{array}$$

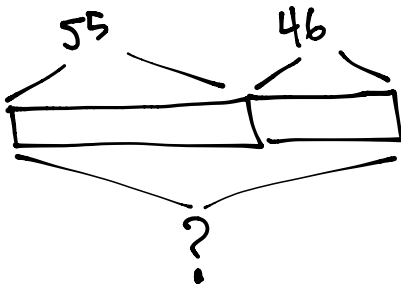
j.  $4\text{ L } 342\text{ mL} + 2\text{ L } 214\text{ mL}$

$$\begin{array}{r} 4\text{ L } 342\text{ mL} \\ + 2\text{ L } 214\text{ mL} \\ \hline 6\text{ L } 556\text{ mL} \end{array}$$

k.  $3\text{ kg } 296\text{ g} + 5\text{ kg } 326\text{ g}$

$$\begin{array}{r} 3\text{ kg } 296\text{ g} \\ + 5\text{ kg } 326\text{ g} \\ \hline 8\text{ kg } 622\text{ g} \end{array}$$

2. Mrs. Haley roasts a turkey for 55 minutes. She checks it, and decides to roast it for an additional 46 minutes. Use a tape diagram to find the total minutes Mrs. Haley roasts the turkey.



$$\begin{array}{r} 55 \text{ minutes} \\ + 46 \text{ minutes} \\ \hline 101 \text{ minutes} \end{array}$$

3. A miniature horse weighs 268 fewer kilograms than a Shetland pony. Use the table to find the weight of a Shetland pony.

$$\begin{array}{r} 268 \text{ kg} \\ + 56 \text{ kg} \\ \hline 324 \text{ kg} \end{array}$$

Types of Horses	Weight in kg
Shetland pony	<u>324</u> kg
American Saddlebred	478 kg
Clydesdale horse	<u>802</u> kg
Miniature horse	56 kg

4. A Clydesdale horse weighs as much as a Shetland pony and an American Saddlebred horse combined. How much does a Clydesdale horse weigh?

$$\begin{array}{r} 324 \text{ kg} \\ + 478 \text{ kg} \\ \hline 802 \text{ kg} \end{array}$$

The Clydesdale weighs 802 kg.



Name \_\_\_\_\_

Date \_\_\_\_\_

1. Cathy collects the following information about her dogs, Stella and Oliver.

Stella	
Time Spent Getting a Bath	Weight
36 minutes	32 kg

Oliver	
Time Spent Getting a Bath	Weight
25 minutes	7 kg

Use the information in the charts to answer the questions below.

a. Estimate the total weight of Stella and Oliver.

$$32 \text{ kg} + 7 \text{ kg} \\ \approx 30 \text{ kg} + 10 \text{ kg} = 40 \text{ kg}$$

b. What is the total weight of Stella and Oliver?

$$\begin{array}{r} 32 \text{ kg} \\ + 7 \text{ kg} \\ \hline 39 \text{ kg} \end{array}$$

c. Estimate the total amount of time Cathy spends giving her dogs a bath.

$$36 \text{ minutes} + 25 \text{ minutes} \\ \approx 40 \text{ minutes} + 30 \text{ minutes} = 70 \text{ minutes}$$

d. What is the actual total time Cathy spends giving her dogs a bath?

$$\begin{array}{r} 36 \text{ minutes} \\ + 25 \text{ minutes} \\ \hline 61 \text{ minutes} \end{array}$$

e. Explain how estimating helps you check the reasonableness of your answers.

If my actual answer is close to my estimate, then I know my answer is reasonable.

2. Dena reads for 361 minutes during Week 1 of her school's two-week long Read-A-Thon. She reads for 212 minutes during Week 2 of the Read-A-Thon.

a. Estimate the total amount of time Dena reads during the Read-A-Thon by rounding.

$$\begin{aligned} & 361 \text{ minutes} + 212 \text{ minutes} \\ \approx & 400 \text{ minutes} + 200 \text{ minutes} \\ = & 600 \text{ minutes} \end{aligned}$$

b. Estimate the total amount of time Dena reads during the Read-A-Thon by rounding in a different way.

$$\begin{aligned} & 361 \text{ minutes} + 212 \text{ minutes} \\ \approx & 400 \text{ minutes} + 210 \text{ minutes} \\ = & 610 \text{ minutes} \end{aligned}$$

c. Calculate the actual number of minutes that Dena reads during the Read-A-Thon. Which method of rounding was more precise? Why?

$$\begin{array}{r} 361 \text{ minutes} \\ + 212 \text{ minutes} \\ \hline 573 \text{ minutes} \end{array}$$

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Solve the subtraction problems below.

a.  $70\text{ L} - 46\text{ L}$

$$\begin{array}{r} 20 \quad 50 \\ 70 \\ - 46 \\ \hline 24 \end{array}$$

$20 + 4 = 24\text{ L}$

b.  $370\text{ L} - 46\text{ L}$

$$\begin{array}{r} 320 \quad 50 \quad 4 \\ 370 \\ - 46 \\ \hline 324 \end{array}$$

$324\text{ L}$

c.  $370\text{ L} - 146\text{ L}$

$$\begin{array}{r} 370 \\ - 146 \\ \hline 224 \end{array}$$

$224\text{ L}$

d.  $607\text{ cm} - 32\text{ cm}$

$$\begin{array}{r} 5 \quad 10 \\ 607 \\ - 32 \\ \hline 575 \end{array}$$

$575\text{ cm}$

e.  $592\text{ cm} - 258\text{ cm}$

$$\begin{array}{r} 8 \quad 12 \\ 592 \\ - 258 \\ \hline 334 \end{array}$$

$334\text{ cm}$

f.  $918\text{ cm} - 553\text{ cm}$

$$\begin{array}{r} 8 \quad 11 \\ 918 \\ - 553 \\ \hline 365 \end{array}$$

$365\text{ cm}$

g.  $763\text{ g} - 82\text{ g}$

$$\begin{array}{r} 6 \quad 16 \\ 763 \\ - 82 \\ \hline 681 \end{array}$$

$681\text{ g}$

h.  $803\text{ g} - 542\text{ g}$

$$\begin{array}{r} 7 \quad 10 \\ 803 \\ - 542 \\ \hline 261 \end{array}$$

$261\text{ g}$

i.  $572\text{ km} - 266\text{ km}$

$$\begin{array}{r} 6 \quad 12 \\ 572 \\ - 266 \\ \hline 306 \end{array}$$

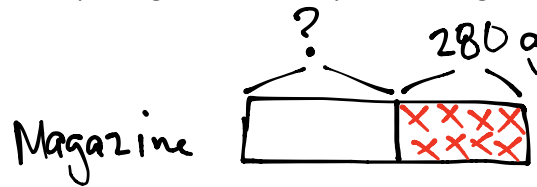
$306\text{ km}$

j.  $837\text{ km} - 645\text{ km}$

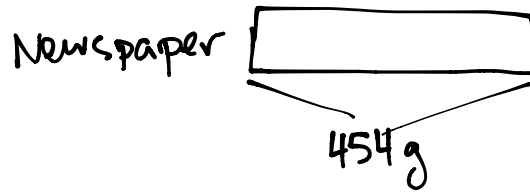
$$\begin{array}{r} 7 \quad 13 \\ 837 \\ - 645 \\ \hline 192 \end{array}$$

$192\text{ km}$

2. A magazine weighs 280 grams less than a newspaper. The weight of the newspaper is shown below. How much does the magazine weigh? Use a tape diagram to model your thinking.



$$\begin{array}{r} 3 \overline{) 454} \text{ g} \\ - 280 \text{ g} \\ \hline 174 \text{ g} \end{array}$$



3. The chart to the right shows how long 3 games take.

- a. Francesca's basketball game is 22 minutes shorter than Lucas' baseball game. How long is Francesca's basketball game?

$$\begin{array}{r} 7 \ 10 \\ 180 \text{ minutes} \\ - 22 \text{ minutes} \\ \hline 158 \text{ minutes} \end{array}$$

Lucas' Baseball Game	180 minutes
Joey's Football Game	139 minutes
Francesca's Basketball Game	<u>158</u> minutes

- b. How much longer is Francesca's basketball game than Joey's football game?

$$\begin{array}{r} 4 \ 18 \\ 158 \text{ minutes} \\ - 139 \text{ minutes} \\ \hline 19 \text{ minutes} \end{array}$$

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Solve the subtraction problems below.

a.  $280 \text{ g} - 90 \text{ g}$

$$\begin{array}{r} \overset{1}{\cancel{2}}\overset{18}{8}0 \text{ g} \\ - 90 \text{ g} \\ \hline 190 \text{ g} \end{array}$$

b.  $450 \text{ g} - 284 \text{ g}$

$$\begin{array}{r} \overset{14}{3}\overset{10}{\cancel{5}}0 \text{ g} \\ - 284 \text{ g} \\ \hline 166 \text{ g} \end{array}$$

c.  $423 \text{ cm} - 136 \text{ cm}$

$$\begin{array}{r} \overset{11}{\cancel{4}}\overset{13}{2}3 \text{ cm} \\ - 136 \text{ cm} \\ \hline 287 \text{ cm} \end{array}$$

d.  $567 \text{ cm} - 246 \text{ cm}$

$$\begin{array}{r} 567 \text{ cm} \\ - 246 \text{ cm} \\ \hline 321 \text{ cm} \end{array}$$

e.  $900 \text{ g} - 58 \text{ g}$

$$\begin{array}{r} \overset{8}{\cancel{9}}\overset{10}{\cancel{0}}0 \text{ g} \\ - 58 \text{ g} \\ \hline 842 \text{ g} \end{array}$$

f.  $900 \text{ g} - 358 \text{ g}$

$$\begin{array}{r} \overset{8}{\cancel{9}}\overset{10}{\cancel{0}}0 \text{ g} \\ - 358 \text{ g} \\ \hline 542 \text{ g} \end{array}$$

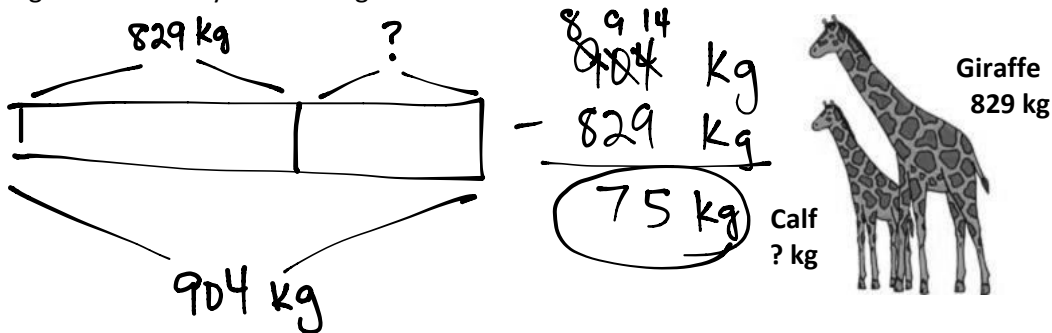
g.  $4 \text{ L } 710 \text{ mL} - 2 \text{ L } 690 \text{ mL}$

$$\begin{array}{r} 4 \text{ L } \overset{6}{\cancel{7}}\overset{11}{1}0 \text{ mL} \\ - 2 \text{ L } - 690 \text{ mL} \\ \hline 2 \text{ L } 20 \text{ mL} \end{array}$$

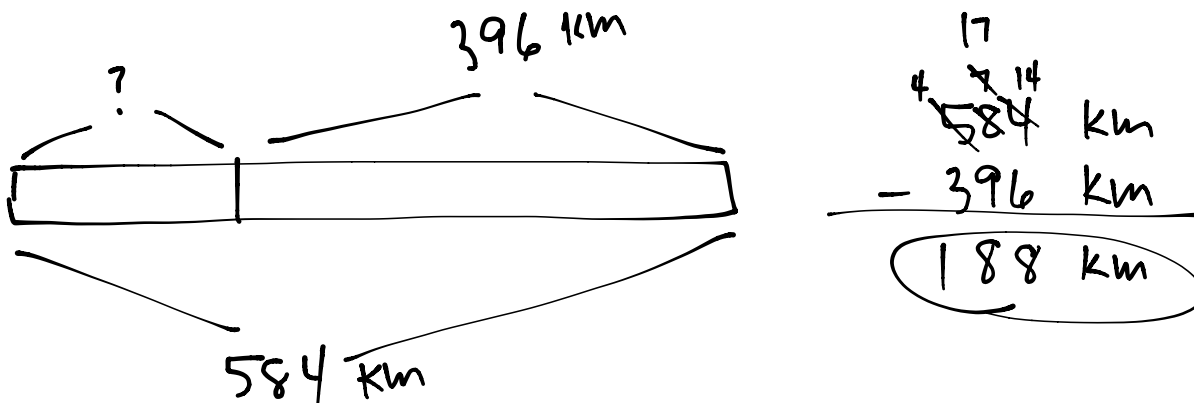
h.  $8 \text{ L } 830 \text{ mL} - 4 \text{ L } 378 \text{ mL}$

$$\begin{array}{r} 8 \text{ L } \overset{7}{\cancel{8}}\overset{12}{3}0 \text{ mL} \\ - 4 \text{ L } 378 \text{ mL} \\ \hline 4 \text{ L } 452 \text{ mL} \end{array}$$

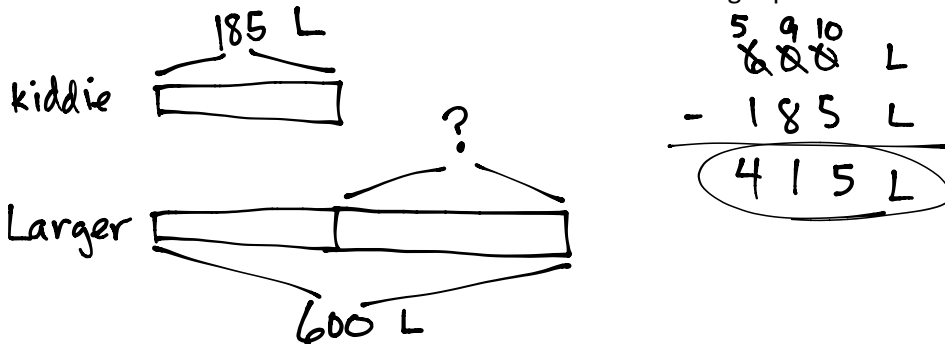
2. The total weight of a giraffe and her calf is 904 kilograms. How much does the calf weigh? Use a tape diagram to model your thinking.



3. The Erie Canal runs 584 kilometers from Albany to Buffalo. Salvador travels on the canal from Albany. He must travel 396 kilometers more before he reaches Buffalo. How many kilometers has he traveled so far?



4. Mr. Nguyen fills two inflatable pools. The kiddie pool holds 185 liters of water. The larger pool holds 600 liters of water. How much more water does the larger pool hold than the kiddie pool?



Name \_\_\_\_\_

Date \_\_\_\_\_

Estimate, and then solve each problem.

1. Melissa and her mom go on a road trip. They drive 87 kilometers before lunch. They drive 59 kilometers after lunch.

- a. Estimate how many more kilometers they drive before lunch than after by rounding to the nearest 10 kilometers.

$$87 \text{ km} - 59 \text{ km} \approx 90 \text{ km} - 60 \text{ km} = 30 \text{ km}$$

- b. Precisely how much farther do they drive before lunch than after lunch?

$$\begin{array}{r} 87 \text{ km} \\ - 59 \text{ km} \\ \hline 28 \text{ km} \end{array}$$

- c. Compare your estimate from (a) to your answer from (b). Is your answer reasonable? Write a sentence to explain your thinking.

My answer is reasonable because it is close to my estimate.

2. Amy measures ribbon. She measures a total of 393 centimeters of ribbon and cuts it into 2 pieces. The first piece is 184 centimeters long. How long is the second piece of ribbon?

- a. Estimate the length of the second piece of ribbon by rounding in two different ways.

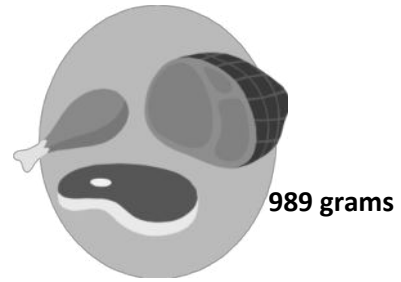
$$\begin{array}{l} 393 \text{ cm} - 184 \text{ cm} \\ \approx 400 \text{ cm} - 200 \text{ cm} \\ = 200 \text{ cm} \end{array}$$

$$\begin{array}{l} 393 \text{ cm} - 184 \text{ cm} \\ \approx 390 \text{ cm} - 180 \text{ cm} \\ = 210 \text{ cm} \end{array}$$

- b. Precisely how long is the second piece of ribbon? Explain why one estimate was closer.

$$\begin{array}{r} 393 \text{ cm} \\ - 184 \text{ cm} \\ \hline 209 \text{ cm} \end{array}$$

Rounding to the nearest 10's is more accurate than rounding to the nearest 100's.



3. The weight of a chicken leg, steak, and ham are shown to the right. The chicken and the steak together weigh 341 grams. How much does the ham weigh?

a. Estimate the weight of the ham by rounding.

$$989 \text{ g} - 341 \text{ g}$$

$$\approx 1000 \text{ g} - 300 \text{ g} = 700 \text{ g}$$

b. How much does the ham actually weigh?

$$\begin{array}{r} 989 \text{ g} \\ - 341 \text{ g} \\ \hline 648 \text{ g} \end{array}$$

4. Kate uses 506 liters of water each week to water plants. She uses 252 liters to water the plants in the greenhouse. How much water does she use for the other plants?

a. Estimate how much water Kate uses for the other plants by rounding.

$$506 \text{ L} - 252 \text{ L}$$

$$\approx 510 \text{ L} - 250 \text{ L} = 260 \text{ L}$$

} Rounded to nearest 10.

b. Estimate how much water Kate uses for the other plants by rounding a different way.

$$506 \text{ L} - 252 \text{ L}$$

$$\approx 500 \text{ L} - 300 \text{ L} = 200 \text{ L}$$

} Rounded to nearest 100.

c. How much water does Kate use for the other plants? Which estimate was closer? Explain why.

$$\begin{array}{r} \overset{4}{5} \overset{10}{0} 6 \text{ L} \\ - 252 \text{ L} \\ \hline 254 \text{ L} \end{array}$$

Rounding to the nearest 10's is more accurate than rounding to the nearest 100's.



Name \_\_\_\_\_

Date \_\_\_\_\_

1. There are 153 milliliters of juice in 1 carton. A 3-pack of juice boxes contains a total of 459 milliliters.  
 a. Estimate, and then find the total amount of juice in 1 carton and a 3-pack of juice boxes.

$$153 \text{ mL} + 459 \text{ mL} \approx \underline{200} + \underline{500} = \underline{600} \text{ mL}$$

$$153 \text{ mL} + 459 \text{ mL} = \underline{612 \text{ mL}}$$

$$\begin{array}{r} 153 \text{ mL} \\ + 459 \text{ mL} \\ \hline 612 \text{ mL} \end{array}$$

- b. Estimate, and then find the difference between the amount in 1 carton and a 3-pack of juice boxes.

$$459 \text{ mL} - 153 \text{ mL} \approx \underline{450} + \underline{150} = \underline{300} \text{ mL}$$

*should be subtraction*

$$459 \text{ mL} - 153 \text{ mL} = \underline{306 \text{ mL}}$$

$$\begin{array}{r} 459 \text{ mL} \\ - 153 \text{ mL} \\ \hline 306 \text{ mL} \end{array}$$

- c. Are your answers reasonable? Why?

Both answers are reasonable because they are close to my estimates.

2. Mr. Williams owns gas stations. He sells 367 liters of gas in the morning, 300 liters of gas in the afternoon, and 219 liters of gas in the evening.

- a. Estimate, and then find the total amount of gas he sells in one day.

$$367 \text{ L} + 300 \text{ L} + 219 \text{ L}$$

$$\approx 400 \text{ L} + 300 \text{ L} + 200 \text{ L}$$

$$= \underline{900 \text{ L}}$$

$$\begin{array}{r} 367 \text{ L} \\ 300 \text{ L} \\ + 219 \text{ L} \\ \hline 886 \text{ L} \end{array}$$

- b. Estimate, and then find the difference between the amount of gas Mr. Williams sells in the morning and the amount he sells in the evening.

$$367 \text{ L} - 219 \text{ L}$$

$$\approx 400 \text{ L} - 200 \text{ L}$$

$$= \underline{200 \text{ L}}$$

$$\begin{array}{r} 367 \text{ L} \\ - 219 \text{ L} \\ \hline 148 \text{ L} \end{array}$$

3. The Blue Team runs a relay. The chart shows the time in minutes that each team member spent running.

Blue Team	Time in Minutes
Jen	5 minutes
Kristin	7 minutes
Lester	6 minutes
Evyy	8 minutes
Total	26 min

a. How many minutes does it take the Blue Team to run the relay?

$$5 + \overset{5}{\underbrace{7}_2} + \overset{5}{\underbrace{6}_1} + \overset{5}{\underbrace{8}_3} = 26 \text{ minutes}$$

b. It takes the Red Team 37 minutes to run the relay. Estimate, and then find the difference in time between the 2 teams.

$$\begin{aligned} 37 \text{ minutes} - 26 \text{ minutes} \\ \approx 40 \text{ minutes} - 30 \text{ minutes} \\ = 10 \text{ minutes} \end{aligned}$$

$$\begin{array}{r} 37 \text{ minutes} \\ - 26 \text{ minutes} \\ \hline 11 \text{ minutes} \end{array}$$

4. The lengths of 3 banners are shown to the right.

Banner A	437 cm
Banner B	457 cm
Banner C	332 cm

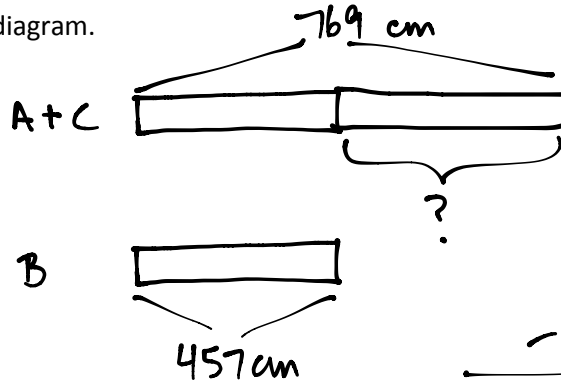
a. Estimate, and then find the total length of Banner A and Banner C.

$$\begin{aligned} 437 \text{ cm} + 332 \text{ cm} \\ \approx 450 \text{ cm} + 350 \text{ cm} \\ = 800 \text{ cm} \end{aligned}$$

$$\begin{array}{r} 437 \text{ cm} \\ + 332 \text{ cm} \\ \hline 769 \text{ cm} \end{array}$$

b. Estimate, and then find the difference in length between Banner B and the total length of Banner A and Banner C. Model the problem with a tape diagram.

$$\begin{aligned} 769 \text{ cm} - 457 \text{ cm} \\ \approx 800 \text{ cm} - 500 \text{ cm} \\ = 300 \text{ cm} \end{aligned}$$



$$\begin{array}{r} 769 \text{ cm} \\ - 457 \text{ cm} \\ \hline 312 \text{ cm} \end{array}$$