Most recent update: October 6, 2020

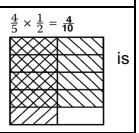
RightStart™ Mathematics

Corrections and Updates for Level F/Grade 5 Lessons and Worksheets, second edition

LESSON/WORKSHEET	CHANGE DATE	CORRECTION OR UPDATE
Lesson 7	04/18/2018	The Quotient and Remainder game instructions should read: Place the **dividend** card, the multiplication card, first in the row, as shown below."
Lesson 16 Worksheet 6	01/07/2019	The second paragraph of Information on the worksheet (and written in the lesson) should read "In the expression 3^2, the exponent 2 means that **the number 3 is multiplied *two* times**." See attached **pdf** for the worksheet.
Lesson 24	10/06/2020	On the second page after the second set of abacuses, it should read "Next tell her… add 15 hundredths and 6 **hundredths**", not 6 hundreds.
Lesson 40 Worksheet 29	01/07/2019	In the warm-up, the second sentence referring to dividing by the same number has been removed. See attached **pdf**.
Lesson 41	12/29/2017	On the second page in the middle of the page at the end of the paragraph, it should read "What is the expression after multiplying by **10**? [7.5/5]" It previously read 100.
Lesson 46	03/27/2019	Under the section Finding Remainders, the last example should read 26)210 with **8 as the quotient and 2 as the reminder**, not 7 as the quotient and 28 as the remainder.
Lesson 54 Worksheet 42-B	12/29/2017	The last equation in the "<, >, or =" section should read **87 × 32.5 ÷ 87**, not 87 ÷ 32.5 × 87 as printed. Answer is the lesson book is correct.
Lesson 57	03/17/2019	On the second page, at the bottom of the "Squaring a sum" paragraph, the equation should read $(3 + 2)^2 = 3^2 + 2^2 + 2 \times (3 \times 2)$, not $(3 + 2)^2 = 3^2 + 2^2 + 2 \times (3 + 2)$.
Lesson 61	12/29/2017	The three answers Problem 1, C, are wrong. answers are

	Figure B			Figure C		
	1 small square	2 small squares	Large square	1 small square	2 small squares	Large square
Area in △	4	8	8	8	16	16
Side in cm	5		7	7		10
Area in cm^2	25	50	49	49	98	100
Side in mm	50		70	70		100
Area in mm^2	2500	5000	4900	4900	9,800	10,000
Side in in.	2		2.8	2.8		3.9
Area in in^2	4	8	7.8	7.8	15.6	15.2

Lesson 64	04/18/2018	The answer for the last question in the Warm up should be "multiply a side by **itself** or $A = s^2$," not "multiply a side by 4 or $A = s^2$."
Lesson 64 Worksheet 52	04/11/2018	In the last chart on the page, the middle heading should read **Boundary Pairs – 1**, not Boundary Pairs. See attached **pdf**.
Lesson 66 Worksheet 54	04/18/2018	Questions should read "Are the formulas for finding… **all** correct?", not ""Are the formulas for finding… are correct?" See attached **pdf**.
Lesson 67	01/07/2019	The height measurements for the second and third triangles in Problem 2 should be 1.2, not 1.0. This changes the area to 0.78 in^2, not 0.7 in^2. See attached **pdf** for the second page of the lesson.
Lesson 67 Worksheet 55	01/07/2019	The instructions and figures have changed slightly. See attached **pdf**.
Lesson 70 Worksheet 58	01/07/2019	The second sentence in Question 1 should read, "**Use a tangram** to draw the height for both triangles using the horizontal lines **as the base**." See attached **pdf**.
Lesson 75	02/15/2018	On the second page, the calculation for the triangular prism should read **1/2 × 2.5 × 2.1 for the base,** calculating the **volume at 19.7 cm^3**.
Lesson 76	04/11/2018	On the second page, last paragraph under the Problem 4 heading, the answer should read **1,000,000,000**, not 1,000,000.000.
Lesson 91	04/18/2018	First answer for the warm up should be 7 11/9 = 8 **2/9**, not 8 2/5.

Lesson 94	04/18/2018	Answer for the third Warm Up problem should be **1 17/30**.
Lesson 99	12/15/2019	The graphics for the fouth equation incorrect. Here is the corrected answer.  is
Lesson 106	01/07/2019	The answers for the previous day's worksheets has an incorrect answer (although it is right for Lesson 105). The third expression in the second column, 5/6 ÷ 4/6, should be **5/4**, not 4/3.
Lesson 116	06/03/2020	On the second page, for possibility 3 as part of Problem 2, add the clarifier that the one-way street **goes south**. For possibility 4, add the clarifier that the one-way streets **go south and go east**. Answers are NS **NE** WE WS.
Lesson 117	10/06/2020	An explation was added across from the six combinations of tiles: **Some children may need encouragement to approach the combinations systematically. For example, if blue is the first tile, what are the other possibilities? If the red tile is the first tile, where could the blue and yellow tiles go?** A second explanation was added across from the question about the number of possibilities for the first position: **The first position is the first tile in the sequence, the second position is the middle tile, and and the third position is the last tile.**
Lesson 117 Worksheet 98	10/06/2020	Problem 3 has been changed slightly. It now reads "A unicycling relay team has four members **either male or female**. The team captain decides the order that they race. How many possibilities are there?"
Lesson 120	03/26/2019	The warm up has the child divide 48 by 8 then 6 and the lesson gives the answer for dividing by 48 by 6 then 8. The lesson book should read 48: 8) 17418.24 is **2177.28**, not 2903.24, then 6) 2177.28 is 362.88 which is correct.
Lesson 125	10/06/2020	A partial product is in error. It should read **4029120**, not 4929120. **2014.56 (0)** × 24 **(6)** **805824** **4029120** **48349.44 (0)**
Lesson 131	04/18/2018	Last question in the conclusion should read: What is 20 millimeters divided by **1 centimeter**? [2], not What is 20 millimeters divided by 10 centimeters? [2]
Lesson 134 Worksheet 115	04/18/2018	Information at the top of the page, conversion for km needs to read: 1 km = **1000 m**, not 1000 cm. See attached **pdf**.
Lesson 136	10/01/2020	On the second page in the middle of the page below the equation t = 1 hr/200 km × 282 km = 1.41 hr, it uses dimentional analysis to change **.41** hours, not .42, to minutes. The next equation should read **.41** hr × 60 min/1 hr = **24.6** min, not .42 hr × 60 min/1 hr = 25.2 min.
Lesson 136	12/15/2019	On the top of the second page, after the third word problem, the following three paragraphs are added. **Ask him to identify what he knows [distance and rate] and what he is looking for. [time]** **Refer to the previously written formula, rate = distance/time and write: time = distance/rate.** **Say: This is another way we could write this relationship. Using this, solve the problem. Solution is below.** An explanation was also added: **Sometimes putting in "simple" number, like 3 = 6/2 in place of $r = d/t$, helps identify other ways to write the equation, such as 2 = 6/3 or $t = d/r$.**
Lesson 137 Worksheet 118	12/15/2019	The dimentions for the carton has been changed to **9.7 cm × 9.5 cm × 19.2 cm**, not 9.3 cm × 9.3 cm × 18.7 cm. The volume of the carton is **1769 cm^3**, not 1617 cm^3.
Lesson 139	04/18/2018	Answer for Worksheet 120-A, under the <, >, or = section, 45 days **<** 2 months.
Lesson 142 Worksheet 123	04/18/2018	Second to last question and answer for Worksheet 123 should read: What is the name of a quadrilateral with only two sides **parallel**? Answer trapezoid is correct. See attached **pdf**.
Lesson 150 Worksheet 130-3	12/16/2019	Question 74 has been changed to "How many **faces** does a **hexagonal** prism have?" Answer is **8**, not 6.
Lesson 150	01/07/2019	Question 22, 151.89 × 8.3 should be **1260.687**, not 1260.678.

Name: _____

Warm-Up

Date: _____

Divide. Use check numbers to check your answers.

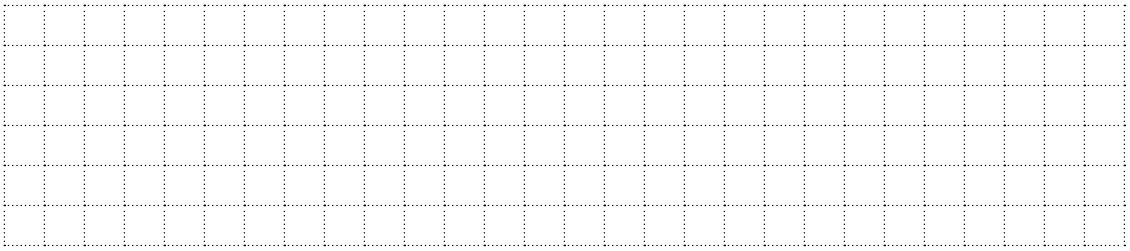
$4\overline{)98765}$ $6\overline{)98765}$ $8\overline{)98765}$

INFORMATION: *Exponents* are a shortcut way of writing a number multiplied by itself a number of times. The exponent is the small number written above the line.

In the expression 3^2, the exponent 2 means that the number 3 is multiplied *two* times. It means 3 × 3. We usually read it as 3 *squared*. In the same way, 4^2 means 4 × 4.

Write 5 squared using exponents and using multiplication. _____ _____

Draw 1^2, 2^2, 3^2, 4^2, and 5^2 squares on the grid below. Label them and find the values.



On the multiplication table, evaluate and circle 1^2, 2^2, 3^2, 4^2, 5^2, 6^2, 7^2, 8^2, 9^2, and 10^2.

1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20
3	6	9	12	15	18	21	24	27	30
4	8	12	16	20	24	28	32	36	40
5	10	15	20	25	30	35	40	45	50
6	12	18	24	30	36	42	48	54	60
7	14	21	28	35	42	49	56	63	70
8	16	24	32	40	48	56	64	72	80
9	18	27	36	45	54	63	72	81	90
10	20	30	40	50	60	70	80	90	100

Evaluate the following expressions.

$(5^2 - 2^2) \div (3 + 4)$ _____

$(3 + 1)^2 - (4 + 6)$ _____

$[10^2 \times (1 + 4)] \div 2$ _____

$\frac{1}{2} \times 2^2 + \frac{1}{2} \times 4^2$ _____

$[(10^2 - 50) - (40 + 8)]^2$ _____

$[(5^2 - 4^2) - (5 - 3)^2] + 1^2$ _____

Name: _____

Date: _____

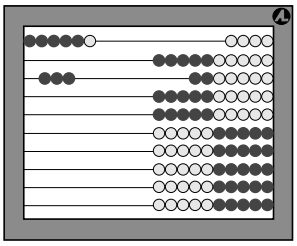
Warm-Up

Multiply the numbers given. Use check numbers to check your work if you like.

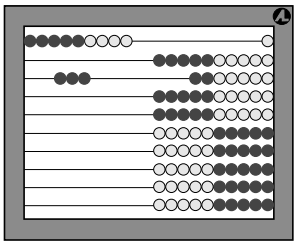
		0	.8	5	( )
	×	2	4		( )
					( )

			3	8	( )
×	0	.4	9		( )
					( )

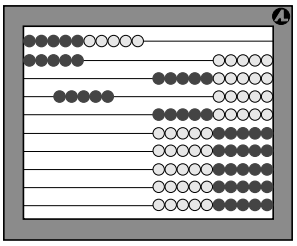
Write the equations shown on the abacuses. Each bead on the abacus represents 0.1.



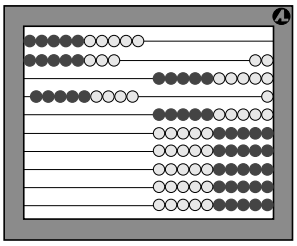
$\frac{0.6}{0.3}$ = _____



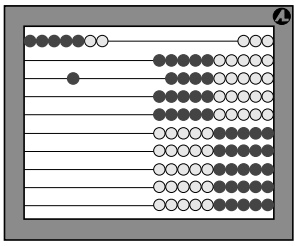
_____ = _____



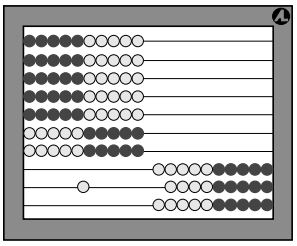
_____ = _____



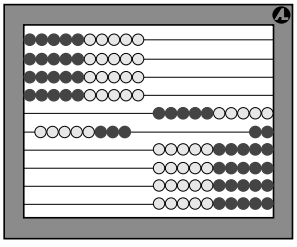
_____ = _____



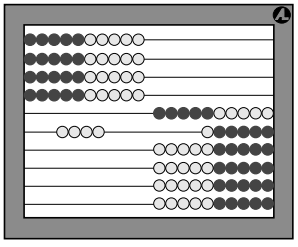
_____ = _____



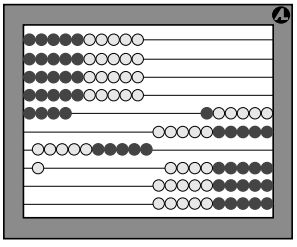
_____ = _____



_____ = _____



_____ = _____

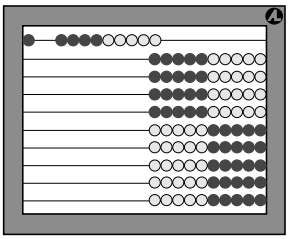


_____ = _____

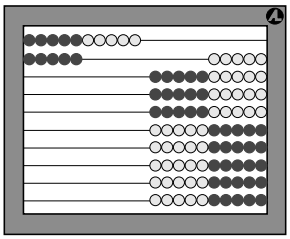
If each bead in the abacuses above suddenly explodes becoming ten times greater, what happens to your answers? _____

ACTIVITIES FOR TEACHING CONTINUED:

Tell her to clear the abacus then enter one tenth and five hundredths. See the right figure below. Ask: How many hundredths is this? [15 hundredths]

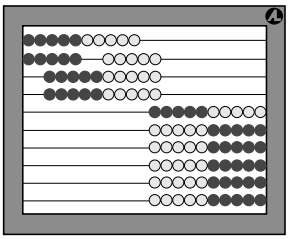


One tenth of one tenth is one hundredth, 0.01.

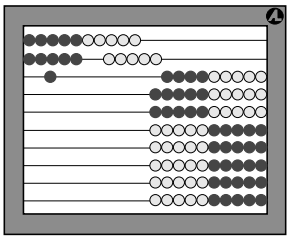


0.1 plus 0.05 = 0.15.

Tell her to add 25 hundredths to the 15 hundredths. See the left figure below. Ask: What are two ways to write the sum using decimals? [0.4 or 0.40]



0.15 + 0.25 = 0.4.



0.15 + 0.06 = 0.21.

Next tell her to clear her abacus then add 15 hundredths and 6 hundredths. [0.21] See the right figure above.

Worksheet 13. Tell the child to complete the worksheet

0.2 + 0.15 = **0.35**	**0.07** + 0.4 = **0.47**	**0.7** + 0.04 = **0.74**
0.56 + 0.04 = **0.6**	**0.38** + 0.15 = **0.53**	**0.82** + 0.18 = **1**
0.79 – 0.06 = **0.73**	**0.44** – 0.2 = **0.24**	**1** – 0.37 = **0.63**

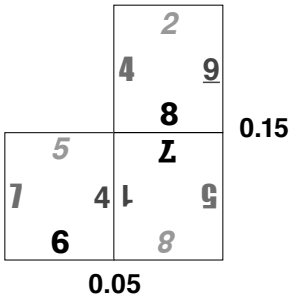
using her abacus. The solutions are below.

Top and Bottom Corners™ with Hundredths game. Play the Top and Bottom Corners™ with Hundredths game, a variation of Top and Bottom Corners™ game, found in *Math Card Games* book, S11. In this game, numbers on the cards are considered to be hundredths. Players take *four* cards to start and take another card after each play.

Record the scores in the math journal. All players start with a score of 5. As usual, players must play to the last card played or to a Corner. They also must play if they can.

In conclusion. Ask: What is the purpose of the decimal point in a number? [It tells where the ones place is.] Which is more, one tenth or ten hundredths? [the same] Which is more, six tenths or sixty hundredths? [the same]

EXPLANATIONS CONTINUED:



Starting with a score of 5 will prevent scores becoming negative.

Name: _____

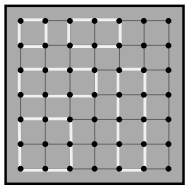
Date: _____

A square formed by four pegs on the geoboard is 1 unit of area.

Boundary points are pegs on the perimeter of the figure. A *boundary pair* is two boundary points.

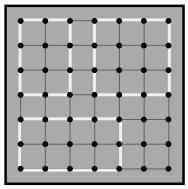
Fill in the table for each figure below.

Figures 1 to 5.



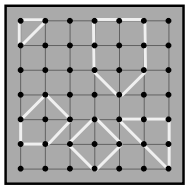
Area in Units	Number of Pegs	
	Boundary Pairs	Inside
1	2	

Figures 6 to 8.



Area in Units	Number of Pegs	
	Boundary Pairs	Inside

Figures 9 to 13.



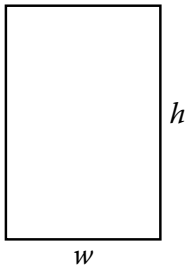
Area in Units	Number of Pegs	
	Boundary Pairs – 1	Inside

Name: _____

Date: _____

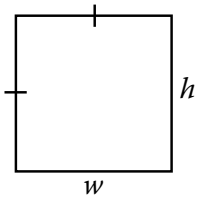
1. Are the formulas for finding the perimeter, P, and area, A, of a rectangle all correct? Write yes or no.

_____ $P = w + h + w + h$
_____ $P = 2w + 2h$
_____ $P = w \times h$
_____ $P = 2(w + h)$
_____ $A = 2(w \cdot h)$
_____ $A = w \times h$



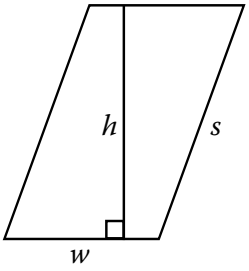
2. Are the formulas for finding the perimeter, P, and area, A, of a square all correct?
Write yes or no.

_____ $P = w + h + w + h$
_____ $P = 2w + 2h$
_____ $P = 2(w + h)$
_____ $P = 4w$
_____ $A = 2 \times (w + h)$
_____ $A = w \cdot h$
_____ $A = w^2$
_____ $A = h^2$



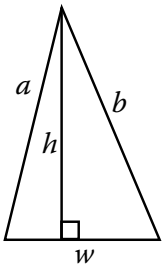
3. Are the formulas for finding the perimeter, P, and area, A, of a parallelogram all correct? Write yes or no.

_____ $P = 2w + 2h$
_____ $P = w \times s$
_____ $P = 2(w + s)$
_____ $A = 2(w \times h)$
_____ $A = ws$
_____ $A = wh$
_____ $A = w \cdot h$



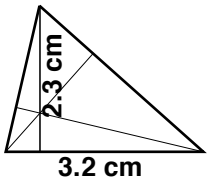
4. Are the formulas for finding the perimeter, P, and area, A, of a triangle all correct?
Write yes or no.

_____ $P = w + b + h$
_____ $P = 2w + 2h$
_____ $P = w + b + a$
_____ $A = w + h$
_____ $A = \frac{1}{2}(w \times h)$
_____ $A = \frac{1}{2} \times (w + h)$
_____ $A = \frac{1}{2}wh$
_____ $A = \frac{wh}{2}$

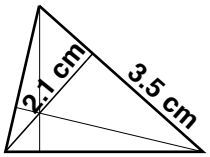


ACTIVITIES FOR TEACHING CONTINUED:

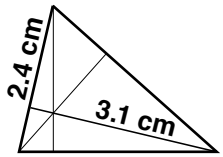
Worksheet 55, Problem 1. Tell the child to read the instructions for the first problem. Tell him the heights are drawn for him, but he needs to match the correct heights and widths. The solutions are below.



$A = \frac{1}{2}wh$
$A = \frac{1}{2} \times 3.2 \times 2.3$
$A = 3.7 \text{ cm}^2$



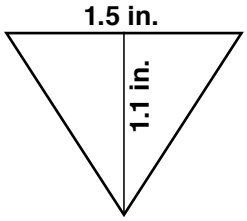
$A = \frac{1}{2}wh$
$A = \frac{1}{2} \times 3.5 \times 2.1$
$A = 3.7 \text{ cm}^2$



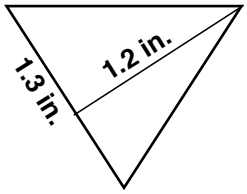
$A = \frac{1}{2}wh$
$A = \frac{1}{2} \times 2.4 \times 3.0$
$A = 3.7 \text{ cm}^2$

Answers may vary slightly.

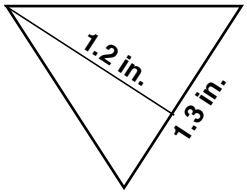
Problem 2. Tell him to complete the second problem on the worksheet. Tell him to use the triangle to draw the perpendicular line. The solutions are below.



$A = \frac{1}{2}wh$
$A = \frac{1}{2} \times 1.5 \times 1.1$
$A = 0.83 \text{ in}^2$



$A = \frac{1}{2}wh$
$A = \frac{1}{2} \times 1.3 \times 1.2$
$A = 0.78 \text{ in}^2$

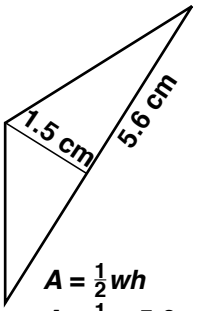


$A = \frac{1}{2}wh$
$A = \frac{1}{2} \times 1.3 \times 1.2$
$A = 0.78 \text{ in}^2$

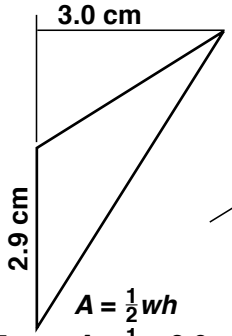
The calculated areas are not identical because the measurements are not exact. The more accurate the measurements, the closer the calculated areas will be.

Ask: What kind of a triangle is this? [isosceles acute triangle] Why do you think the answers are less accurate compared to Problem 1? [Rounding and the tenths of an inch are larger than the tenths of a centimeter.]

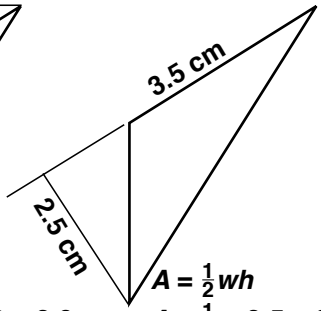
Problem 3. Tell the child to complete the third problem on the worksheet. Tell him that some of the sides of obtuse triangles need to be extended, which is done for him. The solutions are below.



$A = \frac{1}{2}wh$
$A = \frac{1}{2} \times 5.6 \times 1.5$
$A = 4.20 \text{ cm}^2$



$A = \frac{1}{2}wh$
$A = \frac{1}{2} \times 2.9 \times 3.0$
$A = 4.35 \text{ cm}^2$



$A = \frac{1}{2}wh$
$A = \frac{1}{2} \times 3.5 \times 2.5$
$A = 4.38 \text{ cm}^2$

In conclusion. Ask: What do you call a perpendicular line from a side of a triangle to the opposite vertex? [height] How many heights are in a triangle? [three]

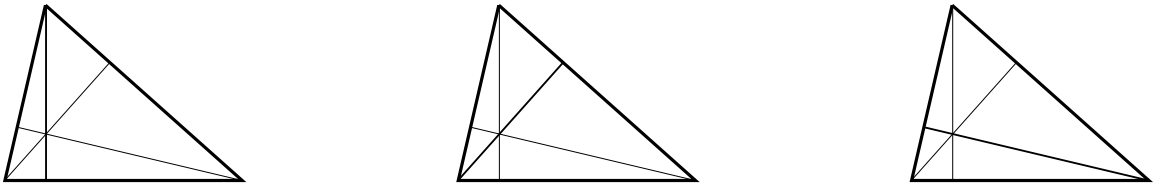
EXPLANATIONS CONTINUED:

If there is additional time following this lesson, play the Find the Products game, found in *Math Card Games* book, P33.

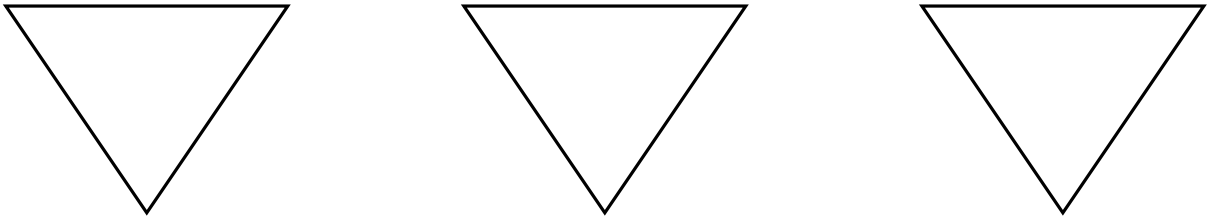
Name: _____

Date: _____

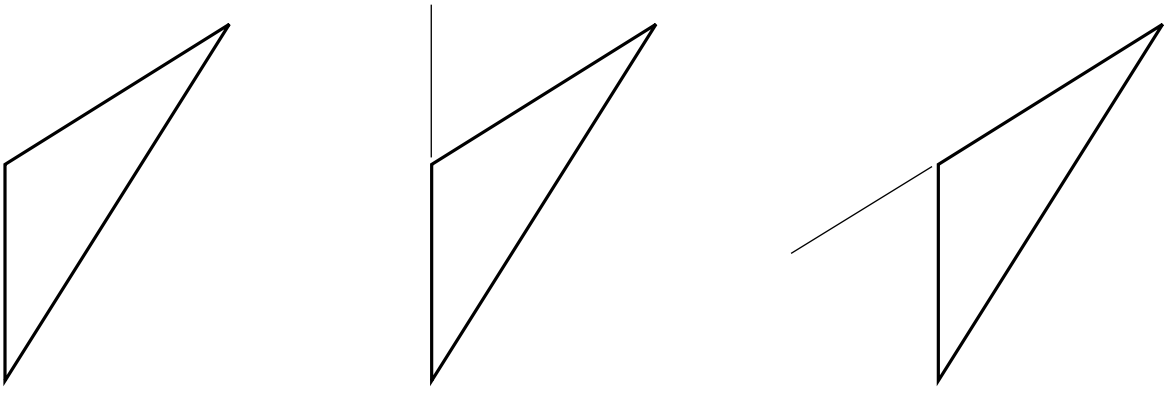
1. Find the area of the triangle below in three different ways. Measure to the nearest tenth of a centimeter.



2. Find the area of the triangle below in three different ways. Measure to the nearest tenth of an inch. Calculate your answer to the nearest hundredths.



3. Find the area of the triangle below in three different ways. Measure to the nearest tenth of a centimeter. Calculate your answer to the nearest hundredths.



Name: _____

Date: _____

INFORMATION: The definition of an inch is: 1 in. = 2.54 cm.
Conversions you may need: 1 km (kilometer) = 1000 m 1 mi = 5280 ft 1 yd = 36 in.

Use dimensional analysis to solve the problems. Do not round. You may use a calculator.

1. Find how many centimeters are in a foot.

   _____ → _____ → _____

   $1 \text{ ft} = 1 \text{ ft} \times \frac{\quad}{\text{ft}} \times \frac{\quad}{\text{in.}} =$ _____ Does your answer agree with a ruler? _____

2. Find how many centimeters are in a yard.

   _____ → ft → _____ → _____

   1 yd = _____ × _____ × _____ × _____ = _____

   Does your answer agree with a yardstick? _____

3. Find how many kilometers are in a mile.

   _____ → ft → _____ → cm → m → km

   1 mi = _____ × _____ × _____ × _____ × _____ × _____ = _____

   Which is longer, a kilometer or a mile? _____

   Round your answer to one decimal point. _____

4. How many miles are in a kilometer? Use your unrounded answer from Problem 3.
   Round to two decimal places.

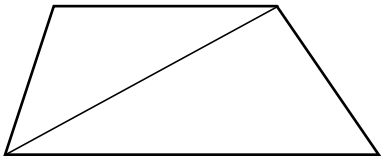
   _____ → _____

Name: _____

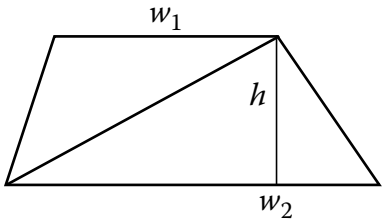
Date: _____

1. Find the area of the trapezoid by breaking it into two triangles as shown below. Use a tangram to draw the height for both triangles using the horizontal lines as the base.

A. Measure in centimeters.

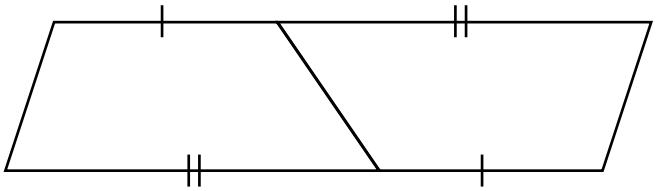


B. Write a formula for the area.

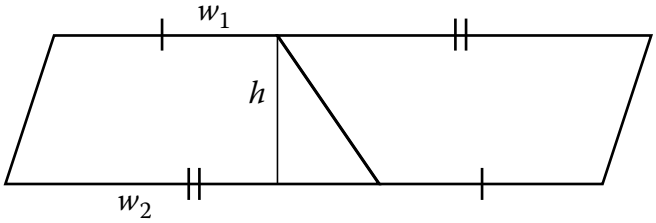


2. Find the area of the parallelogram. Then find the area of one trapezoid.

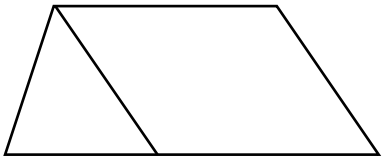
A. Measure in centimeters.



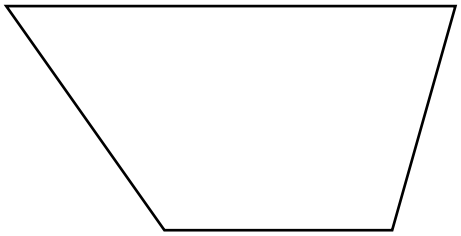
B. Write the formulas for the areas.



3. Find the area of the trapezoid in square centimeters by adding the areas of the parallelogram and triangle.

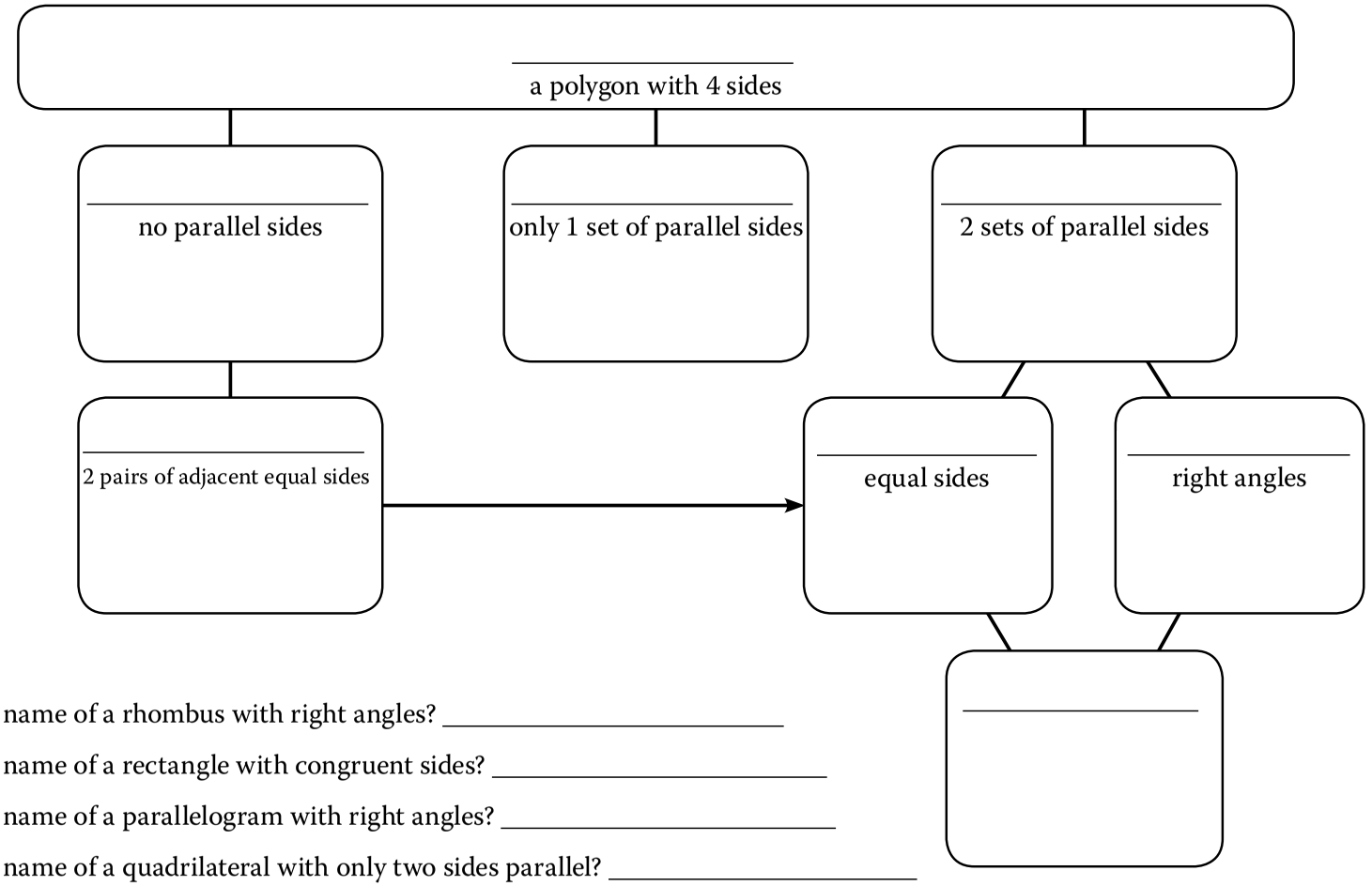


4. Find the area of the trapezoid in square centimeters using any method.



Name: _____ Date: _____

Write the following terms in the chart: no name, trapezoid, parallelogram, rhombus, kite, quadrilateral, square, and rectangle. Use your drawing tools to draw a sample figure in each of the six boxes. Then answer the questions below.



What is the name of a rhombus with right angles? _____

What is the name of a rectangle with congruent sides? _____

What is the name of a parallelogram with right angles? _____

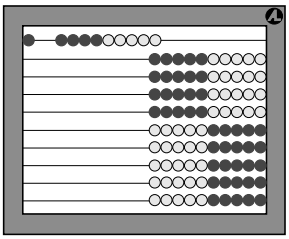
What is the name of a quadrilateral with only two sides parallel? _____

What three quadrilaterals can be made with these lines: ═══ ═══

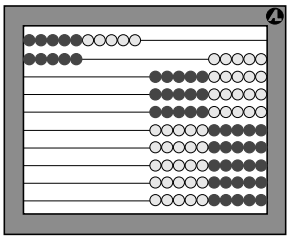
_____

ACTIVITIES FOR TEACHING CONTINUED:

Tell her to clear the abacus then enter one tenth and five hundredths. See the right figure below. Ask: How many hundredths is this? [15 hundredths]

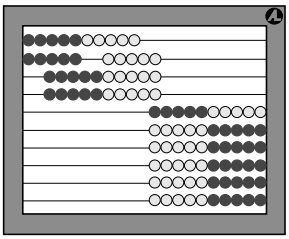


One tenth of one tenth is one hundredth, 0.01.

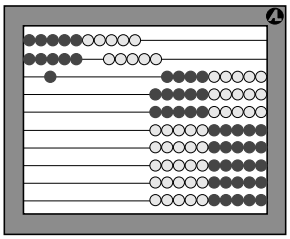


0.1 plus 0.05 = 0.15.

Tell her to add 25 hundredths to the 15 hundredths. See the left figure below. Ask: What are two ways to write the sum using decimals? [0.4 or 0.40]



0.15 + 0.25 = 0.4.



0.15 + 0.06 = 0.21.

Next tell her to clear her abacus then add 15 hundredths and 6 hundredths. [0.21] See the right figure above.

Worksheet 13. Tell the child to complete the worksheet

0.2 + 0.15 = **0.35**	**0.07** + 0.4 = **0.47**	**0.7** + 0.04 = **0.74**
0.56 + 0.04 = **0.6**	**0.38** + 0.15 = **0.53**	**0.82** + 0.18 = **1**
0.79 – 0.06 = **0.73**	**0.44** – 0.2 = **0.24**	**1** – 0.37 = **0.63**

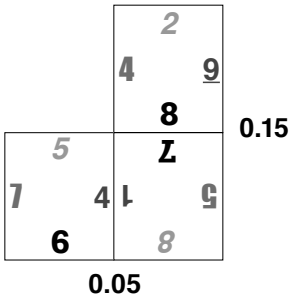
using her abacus. The solutions are below.

Top and Bottom Corners™ with Hundredths game. Play the Top and Bottom Corners™ with Hundredths game, a variation of Top and Bottom Corners™ game, found in *Math Card Games* book, S11. In this game, numbers on the cards are considered to be hundredths. Players take *four* cards to start and take another card after each play.

Record the scores in the math journal. All players start with a score of 5. As usual, players must play to the last card played or to a Corner. They also must play if they can.

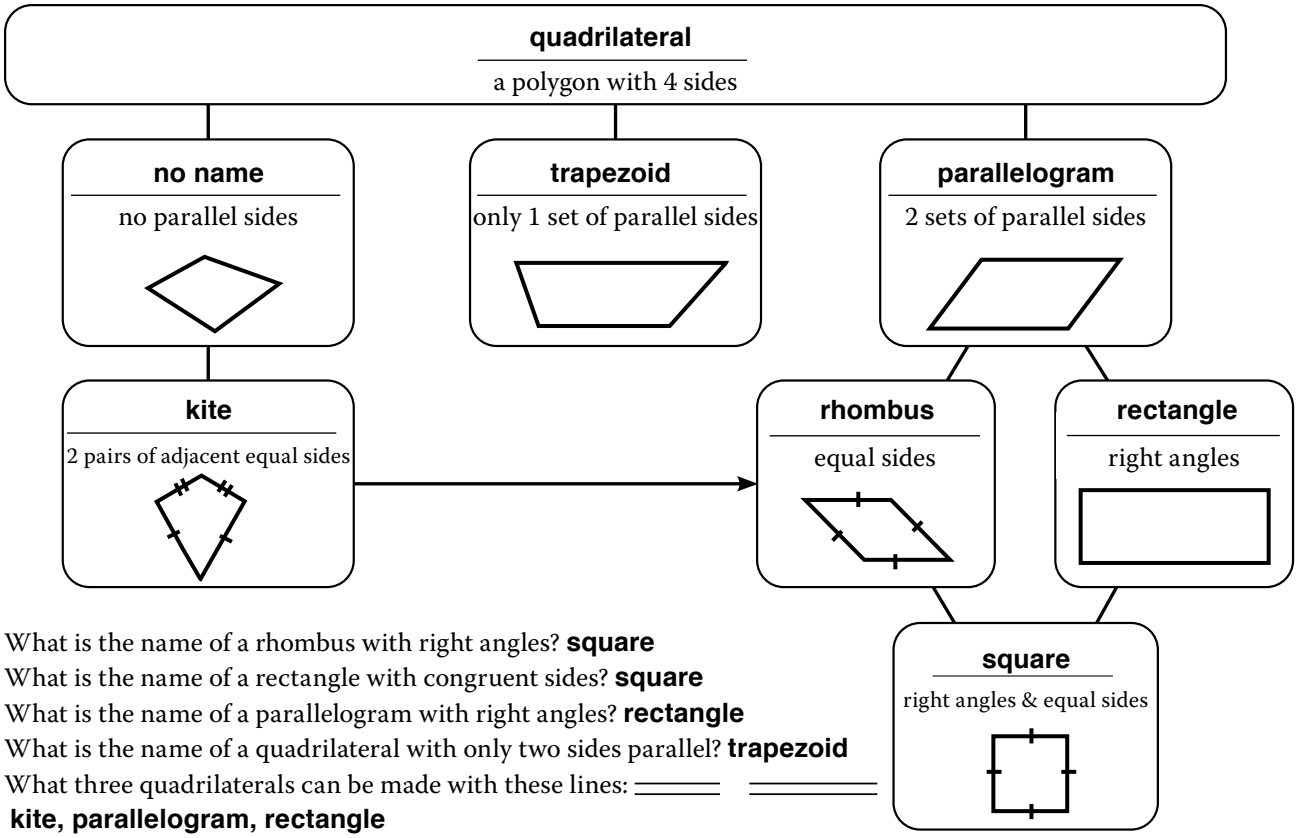
In conclusion. Ask: What is the purpose of the decimal point in a number? [It tells where the ones place is.] Which is more, one tenth or ten hundredths? [the same] Which is more, six tenths or sixty hundredths? [the same]

EXPLANATIONS CONTINUED:



Starting with a score of 5 will prevent scores becoming negative.

ACTIVITIES FOR TEACHING CONTINUED:



What is the name of a rhombus with right angles? **square**
What is the name of a rectangle with congruent sides? **square**
What is the name of a parallelogram with right angles? **rectangle**
What is the name of a quadrilateral with only two sides parallel? **trapezoid**
What three quadrilaterals can be made with these lines: = =
kite, parallelogram, rectangle

Follow-up questions. Ask: What figures are parallelograms with right angles? [rectangle, square] Tell him to find them on the chart. Ask: What figures are parallelograms with congruent sides? [rhombus, square] Tell him to find them on the chart.

Say: The diagonals in a kite are perpendicular. Ask: What other figures have perpendicular diagonals? [rhombus, square] How do you know? [Rhombuses and squares are kites.]

Ask: What figure is a rhombus with right angles? [square] What figure is both a rectangle and a rhombus? [square] What are five names for a square? [rhombus, rectangle, parallelogram, quadrilateral, and polygon] Which of these figures are polygons? [all of them] Which of these figures is a regular polygon? [square]

Ask: What are three names for a rhombus that does not have right angles? [parallelogram, quadrilateral, and polygon]

Ask: What are three names for a rectangle whose adjacent sides are not congruent? [parallelogram, quadrilateral, and polygon]

In conclusion. Say: All quadrupeds have four legs. Ask: Is a giraffe a quadruped? [yes] Is an eagle a quadruped? [no] Why not? [Eagles do not have four legs.]

EXPLANATIONS CONTINUED:

The last question on the worksheet does not identify the two sets of lines as parallel lines, rather just two sets of equal length lines. If the lines are assumed to be parallel, then kite is not a correct answer.

ACTIVITIES FOR TEACHING CONTINUED:

Problem 3. Tell the child to read Problem 3 on the worksheet.

3. Olive is taking a train in Japan from Hiroshima to Osaka. The distance is 282 km and the train's average speed is 200 km per hr. How long will the trip take?

Ask him to identify what he knows [distance and rate] and what he is looking for. [time]

Refer to the previously written formula, rate = $\frac{\text{distance}}{\text{time}}$ and write: time = $\frac{\text{distance}}{\text{rate}}$

Say: This is another way we could write this relationship.

Using this, solve the problem. Solution is below.

$$t = \frac{1 \text{ hr}}{200 \text{ km}} \times 282 \text{ km} = 1.41 \text{ hr}$$

Tell the child dimensional analysis can help change .41 hours to minutes.

Write: $.41 \text{ hr} \times \frac{60 \text{ min}}{1 \text{ hr}} = 24.6 \text{ min}$

Ask: How long is Olive's ride in hours and whole minutes? [1 hr and 25 minutes]

A way to do this with the calculator is to write down the minutes, subtract them on the calculator, and multiply by 60. For this example: 1.41 ⊖ 1 ⊗ 60 ⊜ 24.6.

Problems 4-6. Tell the child to complete the worksheet. Solutions are below.

4. Sam can bicycle 15 kilometers per hour. How long will it take Sam to bike 50 kilometers? Give your answer in hours and whole minutes.

$$t = \frac{1 \text{ hr}}{15 \text{ km}} \times 50 \text{ km} = 3.333 \text{ hr} = 3 \text{ hr } 20 \text{ min}$$

5. Rebecca ran a marathon, 26.2 miles, in 2 hr 42 min. What was Rebecca's rate in mph?

$$t = 2 \text{ hr} + 42 \text{ min} \times \frac{1 \text{ hr}}{60 \text{ min}} = 2.7 \text{ hr}$$

$$r = \frac{26.2 \text{ mi}}{2.7 \text{ hr}} = 9.7 \text{ mph}$$

6. How many feet does a car travel in 1 second when it is going 60 mph?

$$d = \frac{60 \text{ mi}}{1 \text{ hr}} \times \frac{5280 \text{ ft}}{1 \text{ mi}} \times \frac{1 \text{ hr}}{60 \text{ min}} \times \frac{1 \text{ min}}{60 \text{ sec}} = \frac{88 \text{ ft}}{1 \text{ sec}}$$

In conclusion. Ask: What do you call this method of problem solving? [dimensional analysis] If a car is traveling 100 kilometers an hour, how far will it go in an hour? [100 km] How far will it go in half an hour? [50 km]

EXPLANATIONS CONTINUED:

Sometimes putting in "simple" number, like $3 = \frac{6}{2}$ in place of $r = \frac{d}{t}$, helps identify other ways to write the equation, such as $2 = \frac{6}{3}$ or $t = \frac{d}{r}$.

To find the time, *t*, requires the conversion factor with the hour, hr, to be in the numerator.