Eureka Math™ Homework Helper

2015–2016

Grade 2
Module 2
Lessons 1–10

G2-M2-Lesson 1

1. The length of the picture of the shovel is about ___**8**___ centimeters.

I need to count the number of centimeter cubes between the endpoints. Then, I can find out the length of the picture in centimeters.
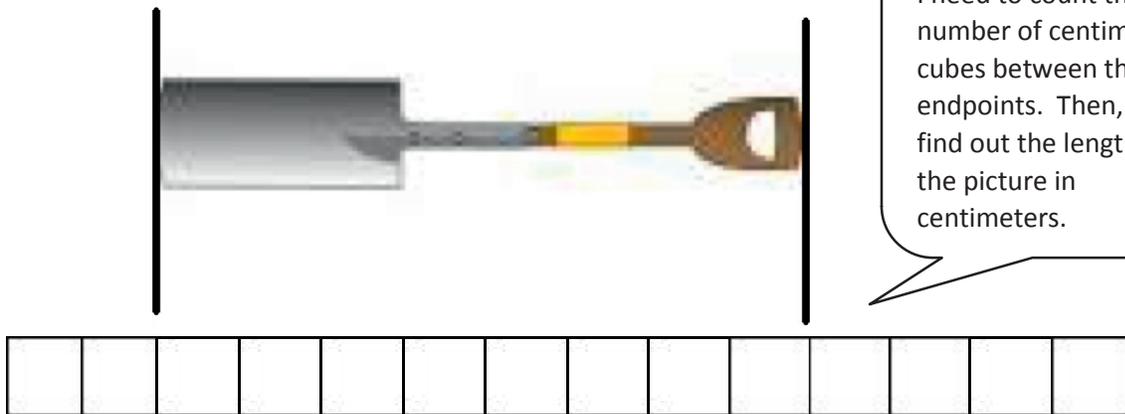
2. The length of a screwdriver is 19 centimeters. The handle is 5 centimeters long. What is the length of the top of the screwdriver?

19 cm

5 cm   **?**

$5 + \underline{\quad} = 19$
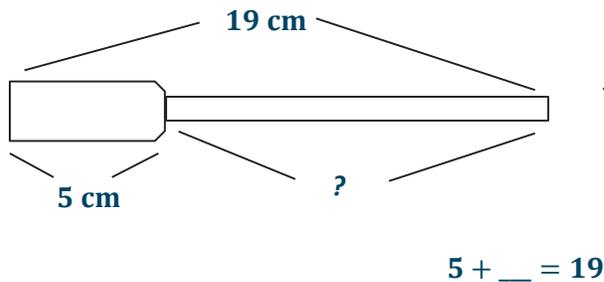
The top of the screwdriver is 14 centimeters.

I can use the Read-Draw-Write process to solve. I can draw a screwdriver and label the whole length 19 cm. This is just like lining up my centimeter cubes! I know one part is 5 centimeters, so I'll label that. I can use addition to solve for the unknown part, which is 14 cm. I can write a complete statement of my answer.

EUREKA MATH | **Lesson 1:**   Connect measurement with physical units by using multiple copies of the same physical unit to measure.   **1**

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G2-M2-Lesson 2

1. The picture of the eraser is about ___**4**___ centimeters long.

> I can cut out the centimeter cube and use the mark and move forward strategy to measure the picture. I have to mark where the cube ends before I can move it forward again.

2. John used a centimeter cube and the mark and move forward strategy to measure these pieces of tape. Use his work to answer the following questions.

A	B
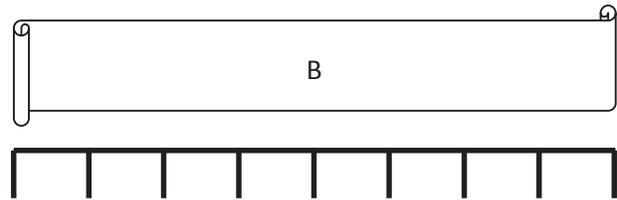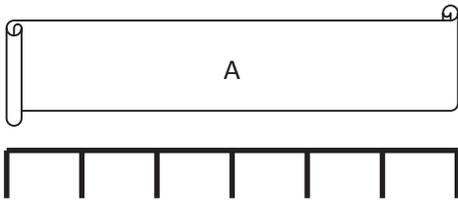
How long is Tape A? __**6**__ centimeters long.

How long is Tape B? __**8**__ centimeters long.

Which tape is shorter? _____*Tape A*_____

The total length of Tapes A and B is __**14**__ centimeters.

> Since John measured without any gaps or overlaps, I know that the distance between the pencil marks is the same length! I can count the length units for each piece of tape.

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Lesson 2: Use iteration with one physical unit to measure.

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G2-M2-Lesson 3

Use your centimeter ruler to answer the following questions.

1. The picture of the animal track is about ___**4**___ cm long.
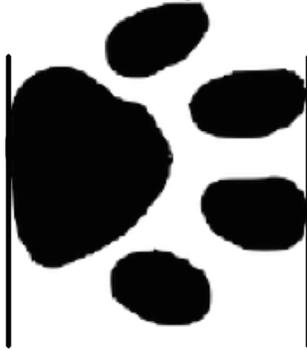
> I know how to accurately line up my centimeter ruler to measure the picture of the animal track. Since my hash marks are labeled, I don't have to count each mark; I can easily see that the picture is 4 centimeters long.

2. Measure the lengths of sides A, B, and C. Write each length on the line.

Side A

___**4**___ cm

Side B

___**9**___ cm

Side C

___**8**___ cm
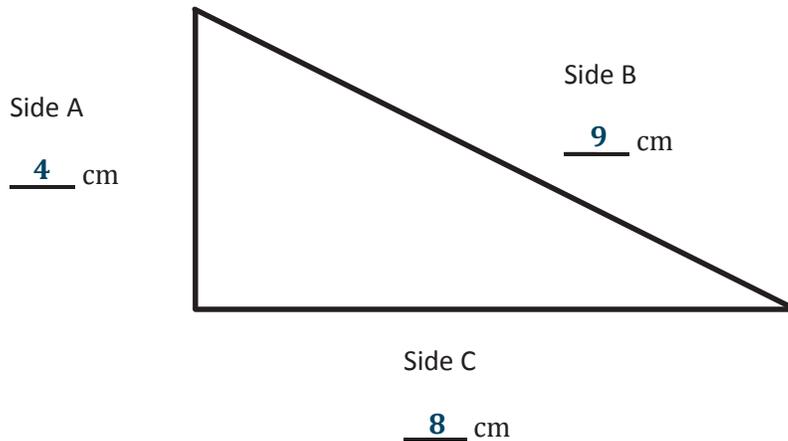
How much shorter is Side C than Side B? ___**1**___ cm

$$9 - 8 = 1$$

> I can use my centimeter ruler to measure the length of each side. Then, I can compare the lengths of two sides by subtracting.

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Lesson 3:   Apply concepts to create unit rulers and measure lengths using unit rulers.

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G2-M2-Lesson 4

1. Circle cm (centimeter) or m (meter) to show which unit you would use to measure the length of each object.

    Length of a glue stick   (cm)   or   m

    Length of a door   cm   or   (m)

    Length of the teacher's desk   cm   or   (m)

    Length of a marker   (cm)   or   m

    > I know that the door and teacher's desk are longer than 100 centimeters, so I can measure with my meter stick.

2. Fill in the blanks with cm or m.

    The height of the building is 12 __m__.

    The length of the blue thread was 8 __cm__ longer than the red thread.

    The runner broke the record for the 500 __m__ dash.

    > I can use my number sense here. I don't think a runner would break a record for a 500 centimeter dash; that's only 5 meter sticks long! The answer must be in meters.

3. Use the centimeter ruler below to find the length (from one mark to the next) of the shape.
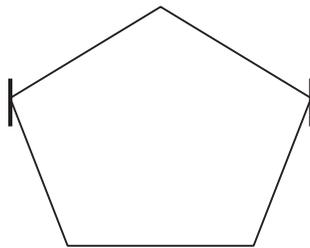
    The shape is __4__ cm long.
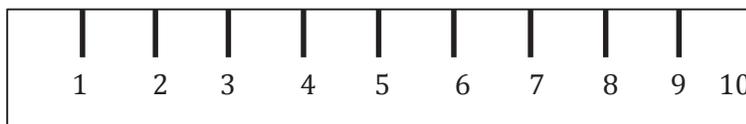
    > The endpoints of the shape line up to the 2 cm and 6 cm mark on the ruler. I can begin at 2 centimeters and count up 4 centimeters until I get to 6 centimeters.

    1   2   3   4   5   6   7   8   9   10

G2-M2-Lesson 5

1. Name two things in school that you would measure in meters. Estimate their lengths.

Item	Estimated Length
chalkboard	*4 meters*
reading corner rug	*3 meters*

> I know that the length from the doorknob to the floor is about 1 meter. So I think the reading corner rug is about 3 of those lengths. The rug looks shorter than the chalkboard, so I can estimate that the rug is about 3 meters long.

2. Choose the best length estimate for each object.

   a. Bulletin board   (2 m)   or   35 cm

   b. Scissors   (13 cm)   or   43 cm

   c. Top of a student desk   18 cm   or   (62 cm)

> I know that a 3-ring binder is about 30 centimeters long. I can picture 2 of those binders fitting across the length of my desktop, which would be about 60 centimeters long.
> So, 62 centimeters is closer to 60 centimeters than 18 centimeters.

3. Measure the length of the line below using your pinky finger. Write your estimate.

Estimate: ___7___ cm

> Since the width of my pinky finger is about 1 centimeter, I can estimate that the length of the line is about 7 centimeters.

G2-M2-Lesson 6

1. Measure each set of lines in centimeters, and write the length on the line. Complete the comparison sentences.

   Line A

   _____

   Line B

   _____

   Line C

   _____

   I can lay my meter strip along each line to measure its length. I need to line up the zero point on my ruler with the endpoint of the line!

Line A	Line B	Line C
15 cm	**5** cm	**8** cm

   Lines A, B, and C are about ____**28**____ cm combined.

   Line C is about ____**7**____ cm shorter than Line A.

   Since Line A is 15 cm long and Line C is 8 cm long, I know that Line C is shorter. I can subtract: $15 - 8 = 7$. Line C is 7 cm shorter than Line A.

2. Line D is 45 cm long. Line E is 70 cm long. Line F is 1 m long.

   Line E is ____**25**____ cm longer than Line D.

   Line E doubled is ____**40**____ cm longer than Line F.

   I know that 1 meter equals 100 centimeters. If I double Line E, then it will be 140 cm long because $70 + 70 = 140$. 140 centimeters is 40 centimeters more than 100 centimeters.

3. Lanie measured the height of her little brother. He is 52 cm tall.

   How much taller is a meter stick than her brother? ____**48**____ cm.

   $$52 + \_\_ = 100$$
   $$52 + 8 = 60$$
   $$60 + 40 = 100$$
   $$8 + 40 = 48$$

   This is like a missing addend problem. I can solve by adding on. I want to get to 100 because a meter stick is 100 cm long. I know that $52 + 8$ will get me to the friendly number 60. Then, $60 + 40 = 100$. And, $8 + 40 = 48$.

G2-M2-Lesson 7

1. Measure each line with one small paper clip, using the mark and move forward method. Then, measure in centimeters using a ruler.

_____ Line A

　　　　　　　　_____ Line B

| Line A | **3** paper clips | **9** cm |
| Line B | **1** paper clips | **3** cm |

Line A is about __**2**__ paper clips longer than Line B.

> I know that Line B is 3 cm long. If I double its length, then it will be 6 cm long. I can use mental math to figure out that Line B doubled is 3 cm shorter than Line A because I know $6 + 3 = 9$.

Line B doubled is about __**3**__ cm shorter than Line A because I know $6 + 3 = 9$.

2. Christina measured Line C with quarters and pennies.

Line C

Why did Christina need more pennies than quarters to measure Line C?

Since the quarter is bigger, it takes fewer quarters to measure the same line. If the length unit

is smaller, like a penny, then you need a greater number of pennies to measure the line.

> If the unit size is bigger, like quarters, then you need fewer units. If the unit size is smaller, like pennies, then you need more units. Coins aren't a good measurement tool. Centimeters are much more reliable because each length unit is the same!

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Lesson 7: 　Measure and compare lengths using standard metric length units and non-standard length units; relate measurement to unit size.

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G2-M2-Lesson 8

1.

A _____

B _____

| | | | | | | | | | | | | | | |
|1|2|3|4|5|6|7|8|9|10|11|12|13|14|15|
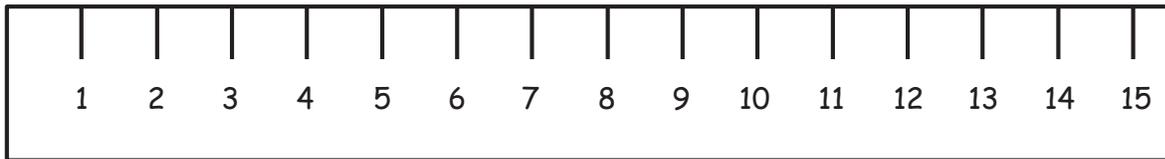
Line A is __8__ cm.   **14 − 6 = 8**   Line B is __9__ cm.   **11 − 2 = 9**

Lines A and B are __17__ cm.   **8 + 9 = 17**

Line A is __1__ cm (longer, ~~shorter~~) than Line B.

> Since Line B starts at 2 cm, I can take away 2 cm from where the line ends at 11 cm. So, the line is 9 cm.

2. A cricket jumped 5 centimeters forward and 9 centimeters back and then stopped. If the cricket started at 23 on the ruler, where did the cricket stop? Show your work on the broken centimeter ruler.

23 + 5 = 28   **28 − 9 = 18 + 1 = 19**

18   10

> I can use addition and subtraction to solve. I can start at 23 and count on 5. Then, I can hop back 9 centimeters or subtract 9. The cricket stops at 19 cm.

| | | | | | | | | | | | | | | | |
|15|16|17|18|19|20|21|22|23|24|25|26|27|28|29|30|
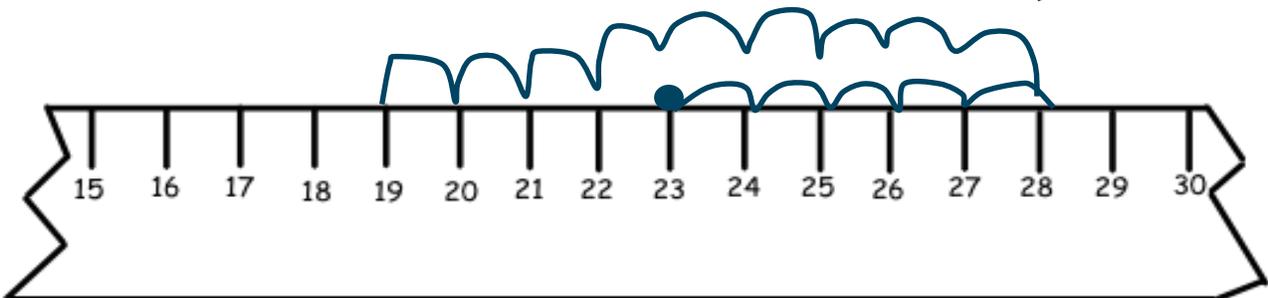
3. All of the parts of the path below are equal length units. Fill in the lengths of each side.
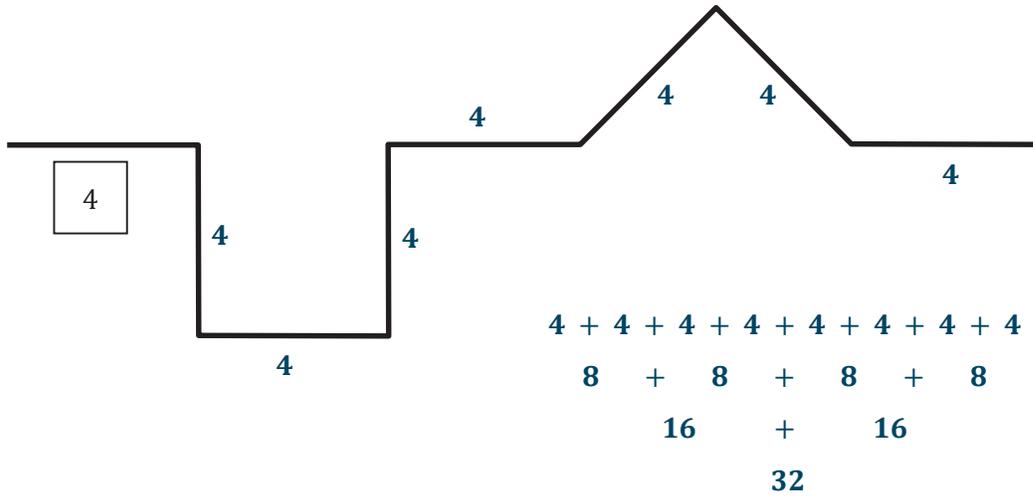
The path is __32__ length units long.

How many more parts would you need to add for the path to be 40 length units long?   __2__ parts

I know that the path is 32 length units. I can think
$32 + \_\_ = 40$. The unknown is 8 length units.
But the question asks for the number of parts.
I know that each part is 4 length units. So, 2 more
parts, $4 + 4$, equals 8.

G2-M2-Lesson 9

1. Tommy completed the chart below by first estimating the measurement around three body parts and then finding the actual measurement with his meter strip.

Body Part Measured	Estimated Measurement in Centimeters	Actual Measurement in Centimeters
Neck	25 cm	31 cm
Wrist	13 cm	17 cm
Head	50 cm	57 cm

What is the difference between the longest and shortest measurements?

__40__ cm $57 - 17 = 40$

Draw a tape diagram comparing the measurements of Tommy's neck and wrist.

Neck | **31 cm** |

Wrist | **17 cm** |

?

$31 - 17 =$ ____

11   20
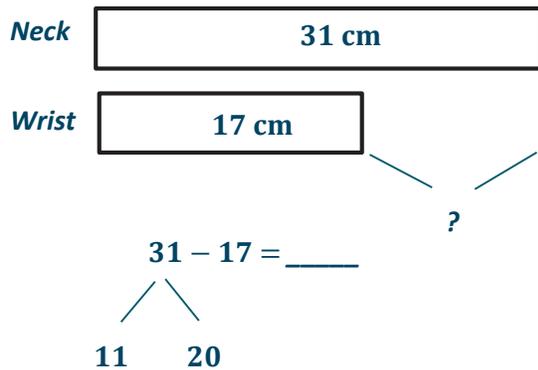
I can draw a tape diagram to compare measurements. The longer bar represents the length around Tommy's neck. The shorter bar represents the length around his wrist. I must remember to draw the second bar directly underneath the first. I have to make sure that they line up perfectly so that the starting points are at the same place.

$20 - 17 = 3$
$11 + 3 = 14$

I can describe the difference by writing the expression $31 - 17$. Then, I can draw a number bond and use the take from ten strategy to solve.

Lesson 9:   Measure lengths of string using measurement tools, and use tape diagrams to represent and compare lengths.

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2. Measure the two paths below with your meter strip and string.

Path A

Path B

> I can lay my string straight along each path. Then, I can lay it along the meter strip to figure out the actual length in centimeters.
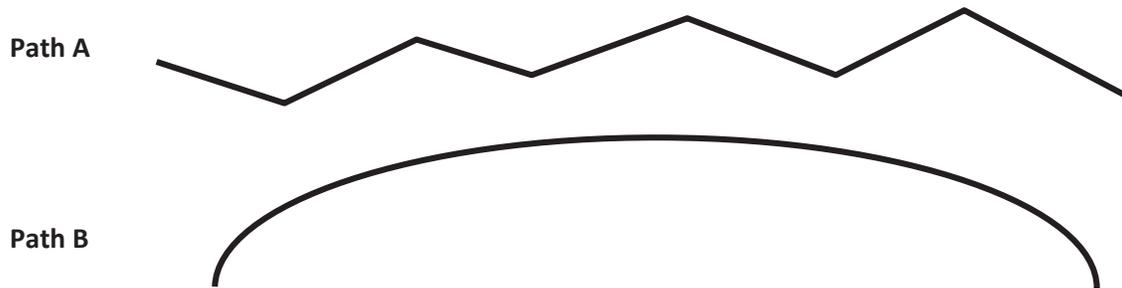
Path A is ____**14**____ cm long.

Path B is ____**13**____ cm long.

Together, Paths A and B measure ____**27**____ cm. $14 + 13 = 27$

Path A is ____**1**____ cm (shorter/(longer)) than Path B. $14 - 13 = 1$

G2-M2-Lesson 10

Use the Read-Draw-Write (RDW) process to solve. Draw a tape diagram for each step.

Jesse's tower of blocks is 30 cm tall. Sarah's tower is 9 cm shorter than Jesse's tower. What is the total height of both towers?

Step 1: Find the height of Sarah's tower.

J | 30 cm |

S | ? |

9 cm
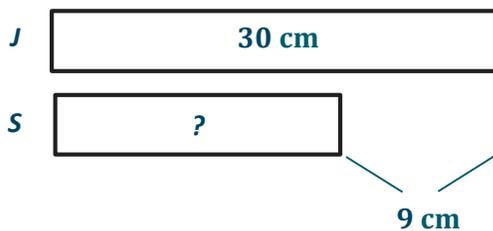
$$30 - 9 = 20 + 1 = 21$$

20 10

$$10 - 9 = 1$$

$$20 + 1 = 21$$ *Sarah's tower is 21 cm.*

> I can draw a tape diagram to compare Jesse and Sarah's towers. I don't know how tall Sarah's tower is, so I can label it with a question mark. But, I know that Sarah's tower is shorter, so I can draw arms and label the difference with 9 cm. I can use subtraction and the take from ten strategy to find the missing part, so $30 - 9 = 21$.

Step 2: Find the total height of both towers.

J | 30 cm |

S | 21 cm |

?
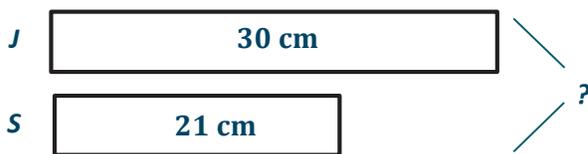
$$30 + 21 = ?$$

$$30 + 21 = 51$$

The total height of both towers is 51 cm.

> From Step 1, I know that Sarah's tower is 21 cm. Now, I can label Sarah's bar with 21 cm. I can add both parts together to find the whole. 30 cm $+ 21$ cm $= 51$ cm.

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Lesson 10:   Apply conceptual understanding of measurement by solving two-step word problems.

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