حلول شاملة لوحدة 13 القياسات المساحة والمحيط والبيانات

تم تحميل هذا الملف من موقع المناهج الإماراتية

موقع المناهج ⇦ المناهج الإماراتية ⇦ الصف الرابع ⇦ رياضيات ⇦ الفصل الثالث ⇦ ملفات متنوعة ⇦ الملف

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	إعداد: محمد إبراهيم

التواصل الاجتماعي بحسب الصف الرابع

صفحة المناهج الإماراتية على فيسبوك					
المواد على تلغرام	التربية الاسلامية	اللغة العربية	اللغة الانجليزية	الرياضيات	

المزيد من الملفات بحسب الصف الرابع والمادة رياضيات في الفصل الثالث

1	إجابة الوحدة 13 الدرس السادس مسائل لفظية متقدمة في تحويل وحدات القياس
2	الوحدة 13 الدرس السادس مسائل لفظية متقدمة في تحويل وحدات القياس غير محلول
3	إجابة الوحدة 13 الدرس الخامس مسائل لفظية في تحويل وحدات القياس الطول والكتلة والسعة
4	الوحدة 13 الدرس الخامس مسائل لفظية في تحويل وحدات القياس الطول والكتلة والسعة غير محلول
5	إجابة الوحدة 13 الدرس الرابع تمارين تحويل وحدات الزمن الدقائق والثواني

رابط مجموعة الصف الرابع

https://t.me/MathG4aMrmohamed

Unit 13 – L 1

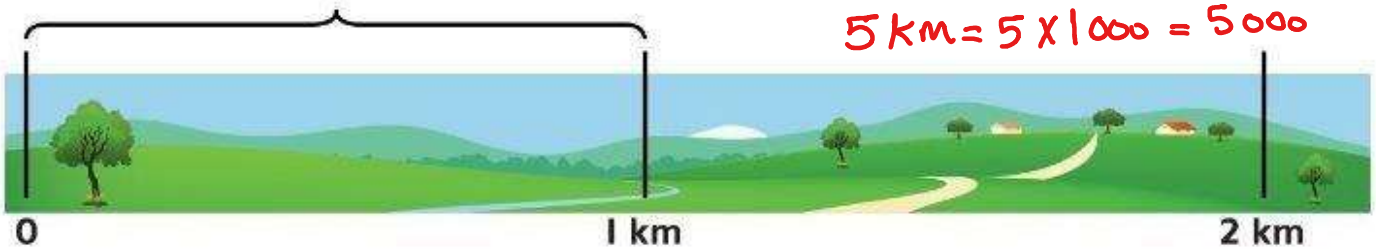
Lesson 13-1

Relate Metric Units

Book Page: 161

Book Page: 141

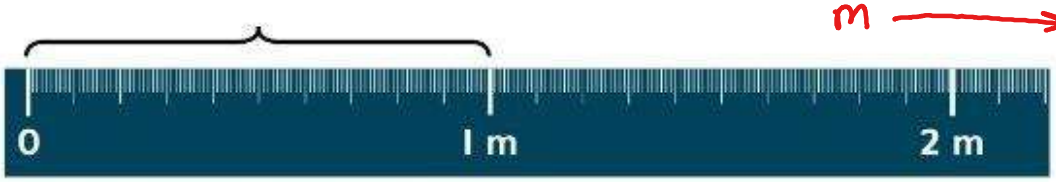
1km = 1000 m



5 km = 5 x 1000 = 5000

1 kilometer (km) = 1000 meters (m)

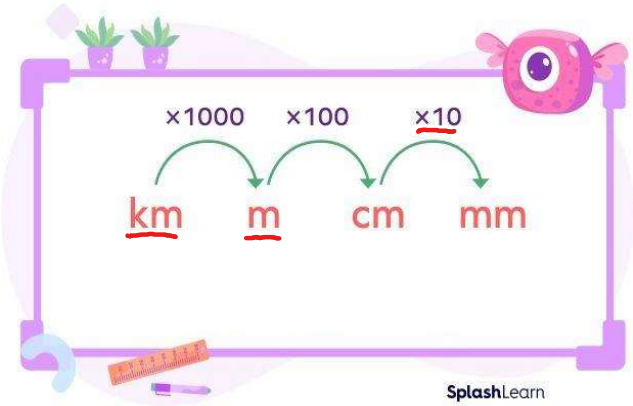
m → cm

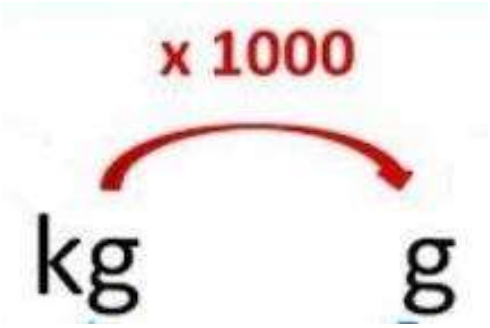


1 meter (m) = 100 centimeters

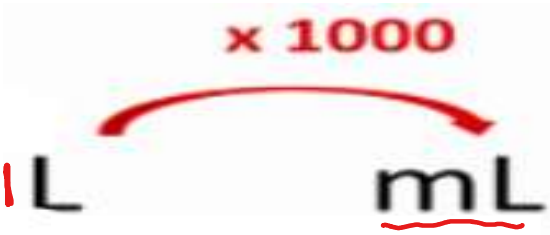
1m = 100 cm

1 centimeter (cm) = 10 millimeters





5 kg = 5000 g



7l = 7000 mL

Book Page: 162

Learn

A local artist painted two murals. The Broad Street mural is 5 meters long. The Central Avenue mural is 485 centimeters long.

Which mural is longer?

Metric units of length include kilometers, meters, centimeters, and millimeters.

1 kilometer (km) = 1,000 meters (m)
1 meter (m) = 100 centimeters (cm)
1 centimeter (cm) = 10 millimeters (mm)

How long is the Broad Street mural in centimeters?

5 meters = **?** centimeters

5 × 100 = 500 — *Multiply to convert from meters to centimeters*

5 meters = **500** centimeters

The Broad Street mural: 500 centimeters

The Central Avenue mural: 485 centimeters

The Broad Street mural is longer.

Work Together

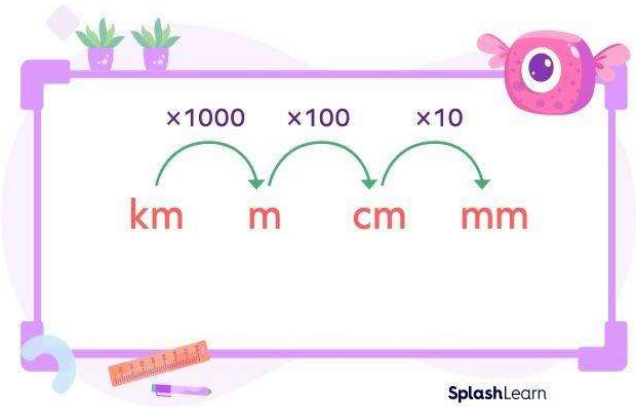
1000

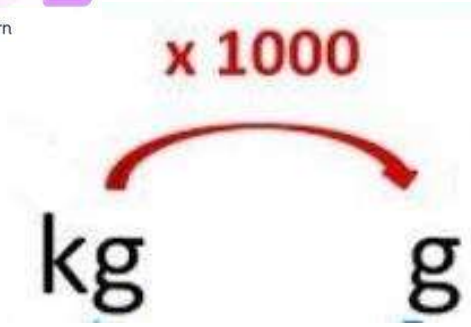
L → mL

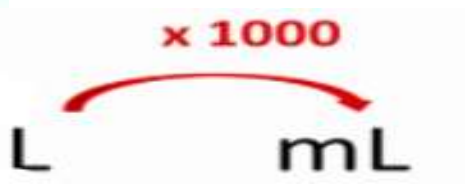
Mr. Decker needs 7 liters of paint for his classroom art project. How many milliliters of paint does he need?

7L = 7000 mL

Book Page: 163







1. Complete the equivalency tables.

a.

Kilograms (kg)	Grams (g)
2	2000
3	3000
4	4000
5	5000

b.

Kilometers (km)	Meters (m)
4	4000
5	5000
6	6000
7	7000

4 x 1000

5 x 1000

2. Convert the larger unit to the smaller unit.

a. 5 meters = ? centimeters ? = 500

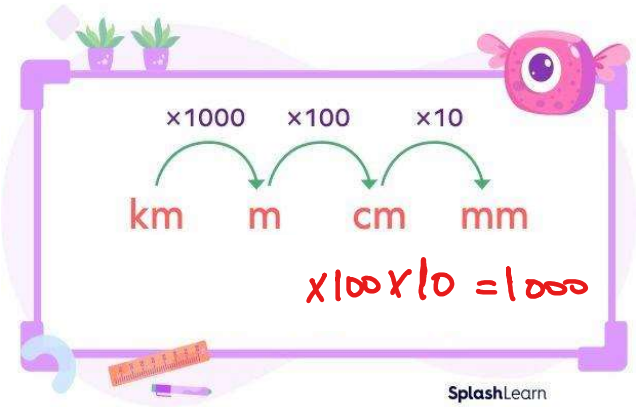
5 x 100

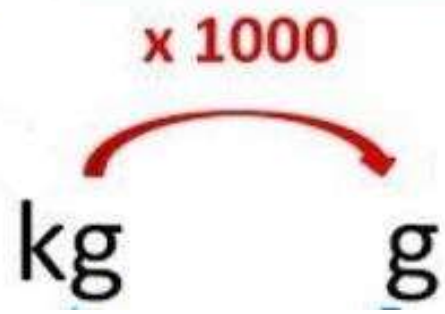
b. 4 kilograms = ? grams ? = 4000

c. 13 liters = ? milliliters ? = 13000

L → x1000 → ml

Book Page: 163





How can you convert the metric units? Complete the equation.

1. 12 meters = ? centimeters (m → cm)

   12 × 100 = 1,200

   12 meters = 1200 centimeters

2. 8 kilograms = ? grams

   8 × 1000 = 8,000

   8 kilograms = 8000 grams

3. 14 centimeters = 140 millimeters

   14x10

4. 25 liters = 25000 milliliters

   25x1000

5. 4 centimeters = 40 millimeters

   4x10

6. 6 meters = 6000 millimeters (mm)

   6x1000

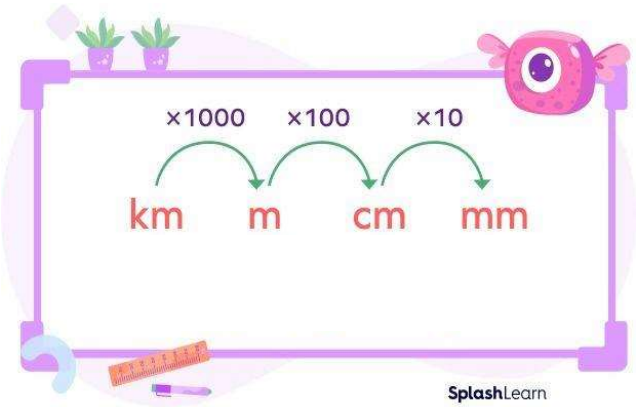
7. 10 liters = 10,000 mili liters

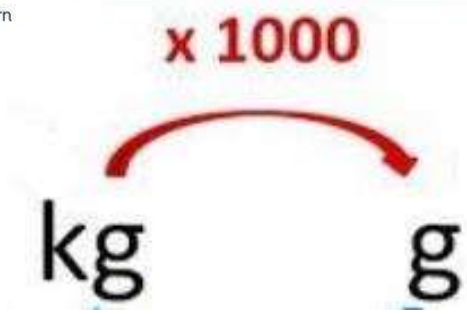
8. 200 meters = 20,000 Centimeters

   20000

   200x100

Book Page: 163





9. How many milliliters of water will fill the tea ettle? Explain.

2L = 2000 mL

2X1000

10. An inchworm crawls 3 meters. What are two other ways to represent the same distance using smaller units?

m ⟶ cm (×1000)

m ⟶ mm (×1000)

3 meters = 300 cm

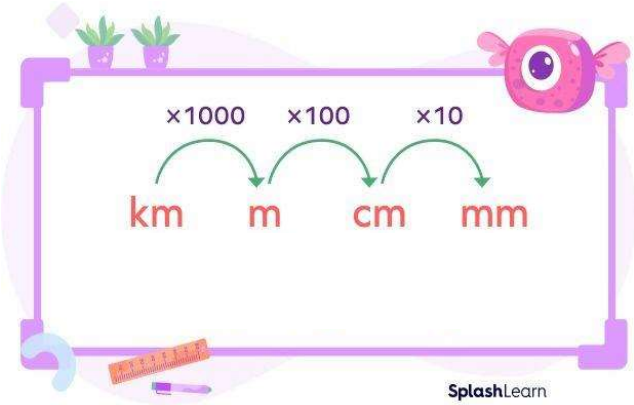
3 meters = 3000 mm

11. A box of printer paper weighs 9 kilograms. Does the box weigh more than 9,000 grams?

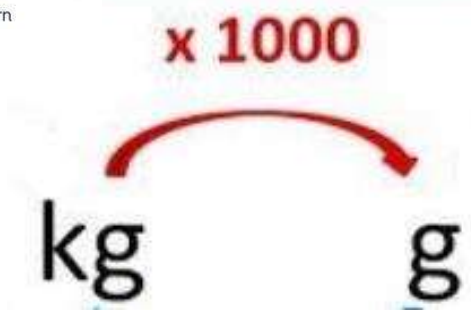
9 kg = 9000 g

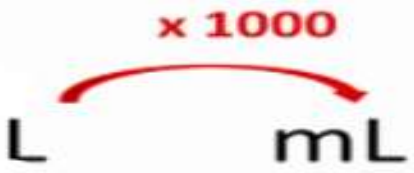
The same

Book Page: 164



m ×1000 → mm





12. In 6 kilometers, there are 6,000 meters. Why does the number with the measurement units increase from 6 to 6,000?

6 Km = 6000 meter

As there are 1000 meter in 1 Km

13. Would it be easier to lift the weight shown or one that weighs 5,000 grams? Explain.

5 kg = 5000 g

The same weight

14. STEM Connection Noah measures 2 liters of fluids What is the equivalent amount of fluids in milliliter ?

2 liter = 2000 mL

رابط مجموعة الصف الرابع

https://t.me/MathG4aMrmohamed

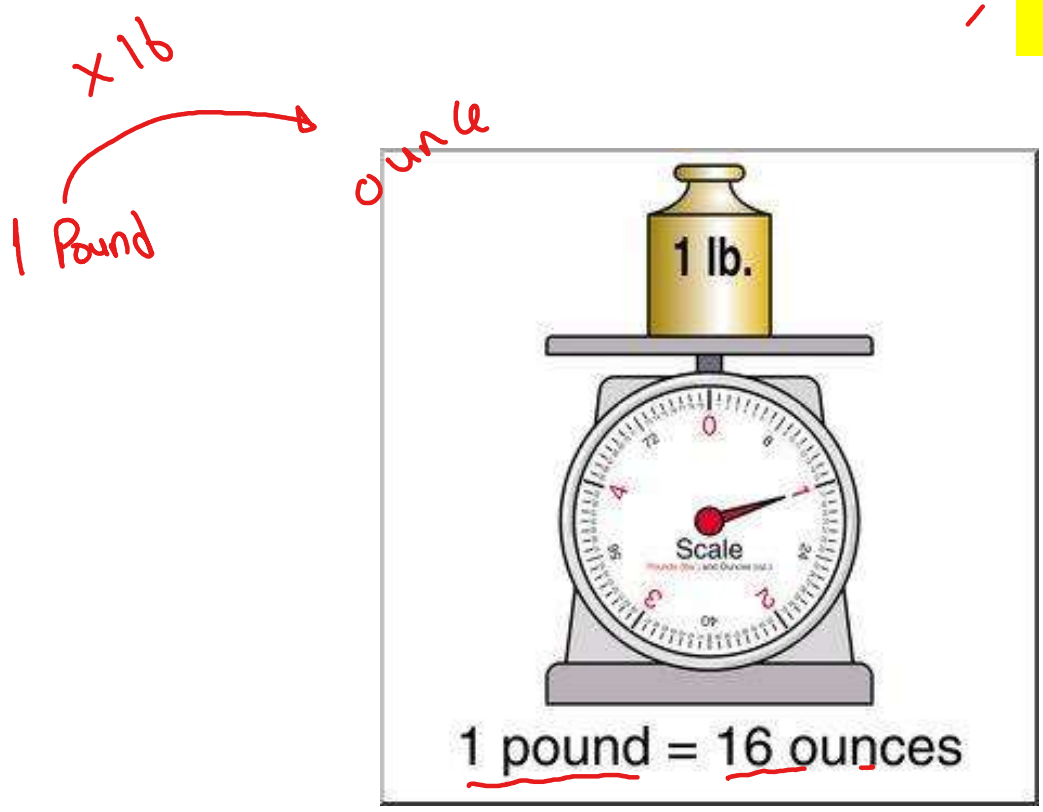
Unit 13 – L 2

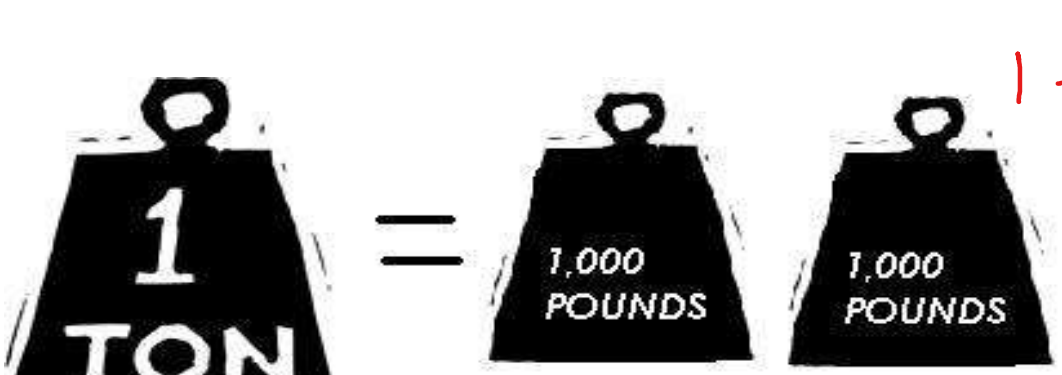
Lesson 13-2

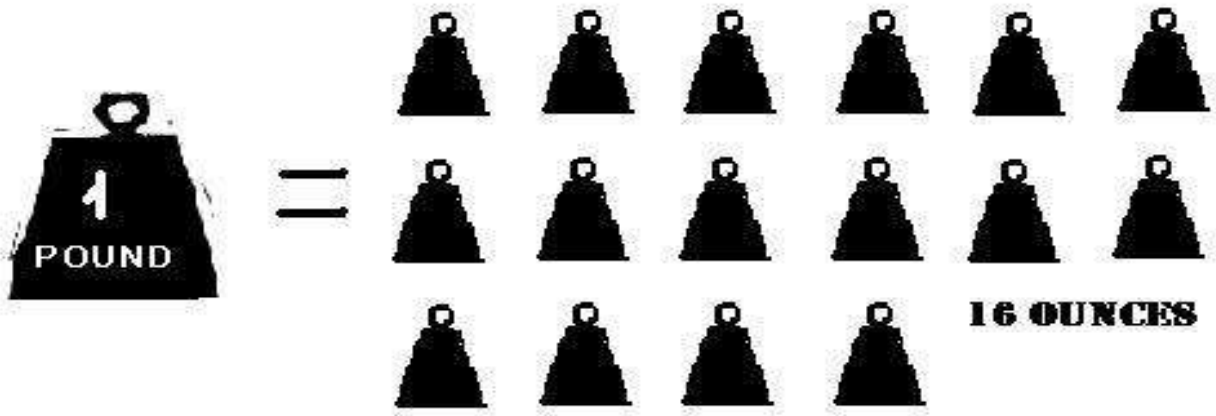
Relate Customary Units of Weight

Book Page: 165

Book Page: 166







ton $\xrightarrow{\times 2000}$ bound $\xrightarrow{\times 16}$ ounce

Learn

Teri bought 3 pounds of flour to make rolls. She uses 4 ounces of flour to make each roll.

How many rolls can Teri make?

You can use a table to help you convert pounds to ounces.

1 pound (lb) = 16 ounces (oz)
1 ton = 2,000 pounds (lb)

Pounds	Ounces
1 x 16	16
2 x 16	32
3 x 16	48
4 x 16	64

1 pound = 16 ounces

Teri has 48 ounces of flour.

Determine how many rolls Teri can make with 48 ounces of flour.

$4 \times r = 48$

Divide to find the missing factor.

$48 \div 4 = 12$

Teri can make 12 rolls with 48 ounces of flour.

Math is... Precision

Why is it important to include the units in the answer?

Work Together

How can you convert pounds to ounces? Complete the equivalence table to show the conversions.

Pounds (lb)	Ounces (oz)
1 x 16	16
2 x 16	32
3 x 16	48
4 x 16	64
5 x 16	80

x 16

Book Page: 166

1 pound (lb) = 16 ounces (oz)
1 ton (T) = 2,000 pounds (lb)

What number makes the equation true?

1. 5 pounds = ? ounces

   5 × 16 = 80

   5 pounds = 80 ounces

2. 8 tons = ? pounds

   8 × 2000 = 16,000

   8 tons = 16000 pounds

3. 4 pounds = 64 ounces

   4 × 16

4. 5 tons = 10000 pounds

   5 × 2000 = 10000

5. 96 ounces = 6 pounds

   16 × 6 = 96

6. 14000 pounds = 7 tons

   7 × 2000 = 14000

7. 10 pounds = 160 ounces

8. 20 tons = 40,000 Pounds

   × 2000

9. Mike bought 7 pounds of tomatoes to make a batch of pizza sauce. What is the weight of the tomatoes in ounces?

   7 Pounds = 112 ounces

   16 × 7 = 112

Pound ↔ Ounce

lb → (oz) ×16

Book Page: 168

10. There are 160 ounces of potatoes in a 10-pound bag. Why is the number of ounces greater than the number of pounds?

1lb = 16 ounces

10 bound = 160 ounces

11. A minivan weighs 3 tons. A truck weighs 8,000 pounds. Which vehicle weighs more? Explain.

3x2000

3 tons

6000 bounds < 8000 Pounds (truck)

12. Jack bought $1\frac{1}{2}$ pounds of bananas. What is the weight of the bananas in ounces?

$1\frac{1}{2} \times 16 = 16 + \frac{16}{2} = 16 + 8 = \boxed{24}$ ounces

13. A truck weighs $2\frac{3}{4}$ tons. What is the weight of the truck in pounds?

ton ⟶ bound

x2000

$2\frac{3}{4} \times 2000 = 4000 + \frac{6000}{4} = 4000 + 1500 = 5500$

14. Mark delivered 1 ton of fertilizer to the botanical garden. Each day they spread 50 pounds of fertilizer on the plants. How many days will it take to spread all the fertilizer? Explain.

1 ton = 2000 bound

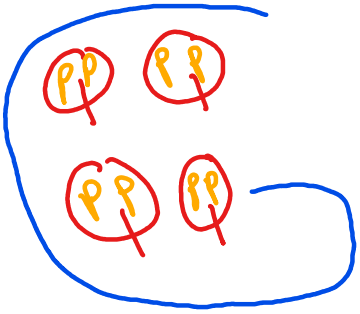
2000 ÷ 50 = 40 days

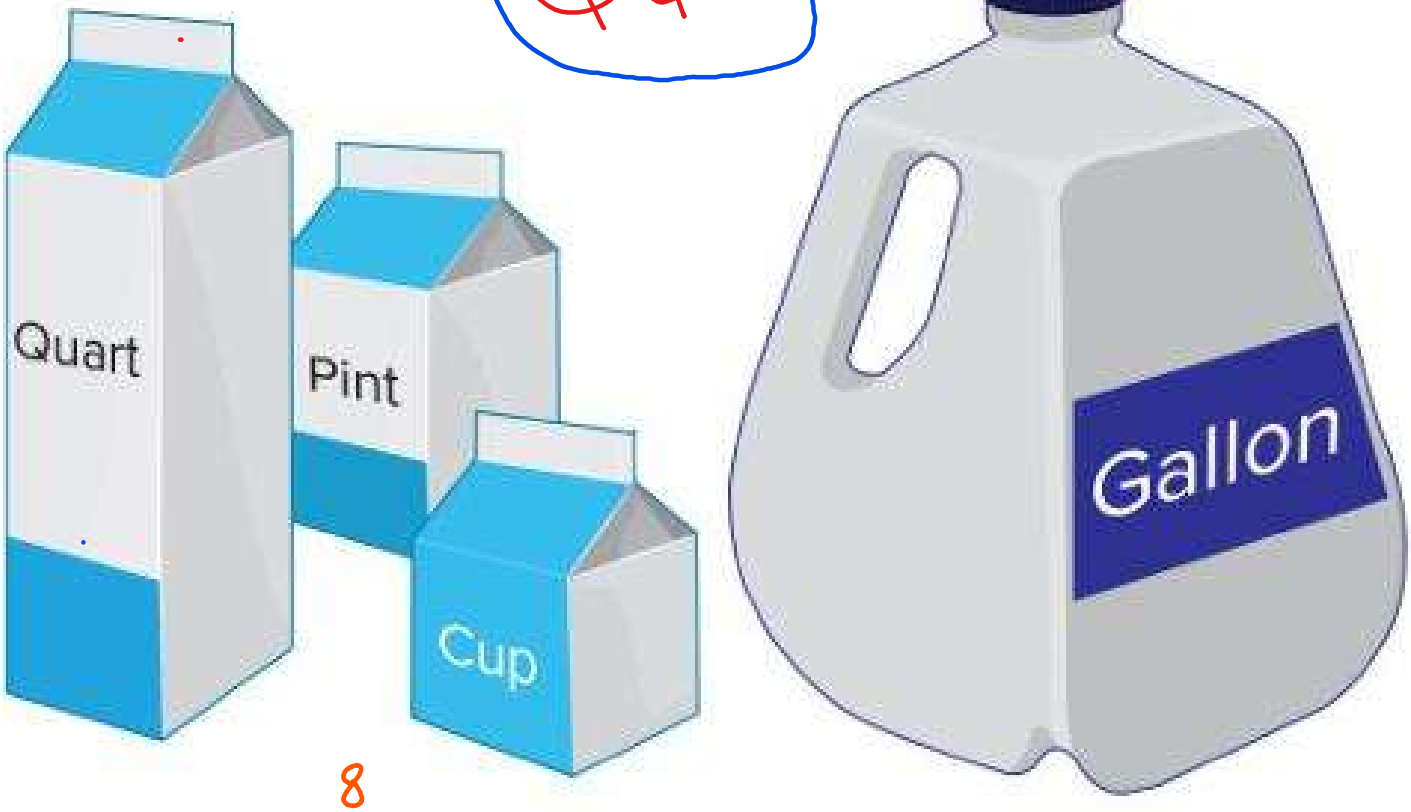
Unit 13 – L 3

Lesson 13-3

Relate Customary Units of Capacity

Book Page: 169





8

Gallon X4 → Quart X2 → Pints X2 → cup X8 → fluid ounces

X4

Book Page: 170

Learn

Leah made 5 quarts of sauce. She will store all the sauce in either 1-pint containers or 1-cup containers.

How many 1-pint containers could she fill?
How many 1-cup containers could she fill?

You can use a table to help you convert quarts to pints.

1 pint (pt) = 2 cups (c)
1 quart (qt) = 2 pints (pt)
1 gallon (gal) = 4 quarts (qt)

Quarts	Pints
1 x2	2
2 x2	4
3 x2	6
4 x2	8
5 x2	10

Leah can fill 10 1-pint containers.

You can use a table to help you convert quarts to cups.

Quarts	Cups
1	4
2	8
3	12
4	16
5	20

Leah can fill 20 1-cup containers.

Math is... Structure

How can you describe the relationship between pints and cups?

You can use multiplication and conversion tables to convert larger customary units of capacity to smaller units of capacity.

Work Together

Complete the equivalence table.

Pints x2 → cups

Gallons (gal)	Quarts (qt)
1 x4	4
2 x4	8
3 x4	12
4	16
5	20

Pints (pt)	Cups (c)
1	2
2 x2	4
3 x2	6
4 x2	8
5 x2	10

Complete the table.

1. ×8

Cups (c)	Fluid Ounces (fl oz)
1 ×8	8
2 ×8	16
3	24
4	32
5 ×8	40

2.

Quarts (qt)	Pints (pt)
1 ×2	2
2 ×2	4
3 ×2	6
4	8
5	10

PP

What number makes the equation true?

3. 6 cups = 48 fluid ounce

cup ×8 → fl oz

6 × 8 = 48

4. 8 quarts = 16 pints (×2)

8 × 2 = 16

5. 16 quarts = 4 gallons (×4)

4 × 4 = 16

6. 14 cups = 7 pints (×2)

7 × 2 = 14

7. Jerry's coffee pot holds 4 cups of coffe . How many fluid ounces does the pot hold?

4 cup = 32 fluid ounces

4 × 8 = 32

8. The baseball teams drink 10 gallons of water at a tournament. How many quarts of water do they drink?

QQ QQ

4 × 10 = 40

10 gallon = 40 quarts

9. Kelly's juice recipe uses 16 quarts of water. How many gallons does her recipe use? (×4)

QQ QQ

16 quarts = 4 gallons

4 × 4 = 16

10. Ben used 40 pints of water to fill hi new aquarium. How many quarts does the aquarium hold? (×2)

PP

40 Pints = 20 quarts

20 × 2 = 40

Big → Small

Book Page: 171

11. Kayla has a pitcher that holds 18 pints and a punch bowl that holds 3 gallons. Which holds more? Explain your answer.

3 x 4 = 12 Qt
12 x 2 = 24 Pt

18 Pints

18 Pints

3 gallons

3 x 8 = 24 Pints

Punch bowl holds more.

12. Jack used $2\frac{1}{2}$ quarts of oil for the lawnmower. How many pints of oil did he use? Explain how you found the solution.

$2\frac{1}{2}$ quart

$2\frac{1}{2} \times 2 = 4 + \frac{2}{2} = 4 + 1 = 5$ Pints

PP

quart ⟶ Pint

13. Celia made 12 quarts of lemonade. She is filling bottles that can hold 2 cups. How many bottles can she fill? Explain

12 quarts

2 cups

2 cups = 1 Pint

12 quarts = 12 Pints = 12 bottles

bottles = 1 Pint

Lesson 13-3

Exit Ticket

Name _____

How can you convert customary units? Complete the missing values.

1. 2 cups = _____ fluid ounces
2. 3 quarts = _____ pints
3. 4 gallons = _____ quarts
4. 5 pints = _____ cups
5. Tori says her soup bowl holds 3 cups of soup. How many ounces does her soup bowl hold?
6. Jazmine buys $1\frac{1}{2}$ gallons of milk. How many quarts of milk does she buy?
7. There are 6 quarts of paint. How many pints of paint are there?

Reflect On Your Learning

I'm confused. — I'm still learning. — I understand. — I can teach someone else.

Unit 13 – L 4

Lesson 13-4

Convert Units of Time

Book Page: 173

Learn

Dora's family drove $3\frac{1}{2}$ hours to get to the beach.

How many minutes did Dora's family spend driving?

You can use multiplication to convert hours to minutes to find the family's driving time.

Use the Distributive Property to convert $3\frac{1}{2}$ hours to minutes.

Number of hours driven

Number of minutes in 1 hour

$$3\frac{1}{2} \times 60 = \left(3 + \frac{1}{2}\right) \times 60$$
$$= (3 \times 60) + \left(\frac{1}{2} \times 60\right)$$
$$= 180 + 30$$
$$= 210$$

There are 210 minutes in $3\frac{1}{2}$ hours. Dora's family drove 210 minutes.

Dora's family took 7 minutes to set up their picnic lunch at the beach.

You can multiply to find the number of seconds it took.

$$7 \times 60 = 420$$

There are 420 seconds in 7 minutes. Dora's family took 420 seconds to set up lunch.

Math is... Quantities

Why does the number of units increase when converting to smaller units?

You can use multiplication and equivalence tables to convert larger units of time to smaller units.

hr $\xrightarrow{\times 60}$ min

Work Together

Complete the equivalence table.

min $\xrightarrow{\times 60}$ s

Hours (hr)	Minutes (min)
1	60
2 ×60	120
3 ×60	180
4	240
5	300

Minutes (min)	Seconds (s)
1	60
2	120
3	180
4	240
5	300

Book Page: 175

What number makes the equation true?

1. 5 hours = ? minutes

   5 × 60 = 300

   5 hours = 300 minutes

2. 10 minutes = ? seconds

   10 × 60 = 600

   10 minutes = 600 seconds

900
600 | 60×10
300
-300 | 60×5
000

3. 7 hours = 420 minutes

   7×60

4. 6 minutes = 360 seconds

   6×60

5. 6 hours = 360 minutes

   6 × 60 = 360

6. 15 hours = 900 minutes

   ×60

   15 × 60 = 900

7. Salma volunteered for 4 hours last weekend. How many minutes did Salma volunteer?

   hours → min

   4 × 60 = 240 minutes

8. When a timer reads 8 minutes, that is 480 seconds. Why is the number of seconds greater than the number of minutes?

   As 1 min = 60 second

9. Lola sang a song that was 4 minutes long. Selina sang a song that was 220 seconds long. Who sang longer? Explain.

   Lola: 4 min → 4 × 60 = 240 > 220 sec

   Lola sang more.

10. Nathan and Chad are running in a $\frac{1}{2}$-mile relay race. Chad runs the first part in 3 minutes. Nathan runs the second part i 150 seconds. Who took longer? How much longer?

    3 min → 3 × 60 = 180 sec

    150 Second

    180 − 150 = 30 Second

    Chad took more

Book Page: 176

11. **Error Analysis** Kyle converted $4\frac{1}{4}$ hours to 244 minutes. Do you agree with Kyle? Explain.

$4\frac{1}{4} \times 60 = 240 + \frac{60}{4}$

$= 240 + 15 = 255$

$4 \times 60 = 240$

$60 \times \frac{1}{4} = \frac{60}{4}$

. Not The same.

I disagree

12. Leann spent 3 hours online last week. If she spent the same amount of time online each of 5 days, how many minutes would she spend online in a day?

hour ← $\frac{3}{5} \times 60 = \frac{180}{5} = 36$ minutes

180	
150	5 × 30
30	
30	5 × 6
0	

13. Diane boiled an egg for $9\frac{1}{2}$ minutes. For how many seconds did she boil the egg?

min ↑ $9\frac{1}{2} \times 60 = 540 + \frac{60}{2}$

$= 540 + 30 = 570$ seconds

$60 \times 9 = 540$

$60 \times \frac{1}{2} = \frac{60}{2}$

Lesson **13-4**

Exit Ticket

Name _____

How can you convert units of time? Find the missing values.

1. 3 minutes = _____ seconds **2.** 4 hours = _____ minutes

3. 5 minutes = _____ seconds **4.** 6 hours = _____ minutes

Compare. Choose <, >, or =.

5. 2 hours ◯ 112 minutes

6. 8 minutes ◯ 490 seconds

7. 2 minutes ◯ 120 seconds

8. This week, Leah practiced piano for 7 hours. How many minutes did she practice the piano?

A. 7 **B.** 360

C. 420 **D.** 480

Reflect On Your Learning

I'm confused. — I'm still learning. — I understand. — I can teach someone else.

Unit 13 – L 5

Lesson 13-5

Solve Problems That Involve Units of Measure

Book Page: 177

01143153175 مستر/ محمد إبراهيم

Learn

The top shelf on Chuck's bookcase can hold a maximum of 5,000 grams. The picture frame and the plants have a total mass of 3 kilograms and 245 grams.

Chuck wants to add two vases to the shelf. What is the greatest possible mass of the two vases in grams?

You can solve the problem in steps.

Step 1 Determine the combined mass of the picture frame and the plants in grams.

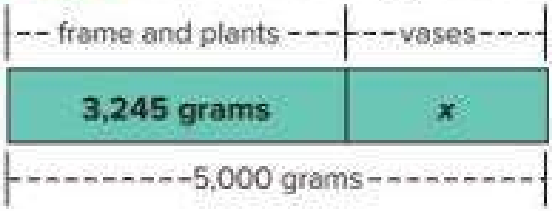
$3 \times 1{,}000 = 3{,}000$

3 kilograms = 3,000 grams — 1 kg = 1,000 g

$3{,}000 + 245 = 3{,}245$

The picture frame and plants have a mass of 3,245 grams.

Step 2 Determine the greatest possible mass of two vases.



$x = 5{,}000 - 3{,}245$

$x = 1{,}755$

The greatest possible mass of the vases is 1,755 grams.

Math is... Modeling

What is another way to represent the problem?

Jonah mixes 500 milliliters of honey with 4 liters of tea. He distributes the sweetened tea equally into 5 containers. How many milliliters of sweetened tea is in each container?

4 L = 4000 mL

→ mix = 500 + 4000 = 4500 mL

→ each container = 4500 ÷ 5 = 900 mL

Book Page: 179

Solve the problem.

1. Lacey walks $1\frac{1}{2}$ kilometers to school. Hsu walks 2 kilometers to school. How many meters do Lacey and Hsu walk in all?

$\rightarrow 1\frac{1}{2} + 2 = 3\frac{1}{2}$ kilometers

km $\xrightarrow{\times 1000}$ m

$\Rightarrow 3\frac{1}{2} \times 1000 = 3000 + \frac{1000}{2}$

$= 3000 + 500 = 3500$ m

2. Jeanette made 6 liters of soup. She serves 5,500 milliliters of the soup. How many milliliters of the soup remain?

6 liters = 6000 ml

remain = $6000 - 5500 = 500$ ml

3. A restaurant owner buys 8 sacks of potatoes. Each sack of potatoes has a mass of 5 kilograms. How many grams of potatoes does he buy?

kg $\xrightarrow{\times 1000}$ g

$8 \times 5 = 40$ kg

$40 \times 1000 = 40000$

4. Niamh has 320 centimeters (cm) of red ribbon and 6,300 millimeters (mm) of blue ribbon. How many more millimeters of blue ribbon than red ribbon does she have?

cm $\xrightarrow{\times 10}$ mm

320 cm = 3200 mm , $6300 - 3200 = 3100$ mm

$$\begin{array}{r} 6300 \\ -\ 3200 \\ \hline 3100 \end{array}$$

5. **STEM Connection** Saffron makes a recipe that calls for 100 milliliters of olive oil. How many times can she make the recipe with 1 liter of olive oil? Justify your answer.

1 liter = 1000 ml

$100 \times \boxed{10} = 1000$

10 times

6. Sylvia has 30 milliliters of red dye and 40 milliliters of yellow dye. If she mixes them, how many milliliters of orange dye will she have?

$30 + 40 = 70$ milliliters of orange dye

Book Page: 180

7. Terrance wants to buy a melon that weighs 3,950 grams. His bag can hold 4 kilograms without tearing. Can he carry the melon in his bag? Explain.

4Kg = 4000g greater than 3950

so he can carry the melon

2m

8. A boy is 2 meters tall. His sister is one-half of his height. How many centimeters tall is his sister?

$\frac{1}{2}$

boy 2m

his sister 1m

1m = 100 cm

m $\xrightarrow{\times 100}$ cm

9. A jug can hold 1 liter of water. There are 820 milliliters of water in the jug. How many more milliliters of water is needed to fill the jug?

1L = 1000 ml

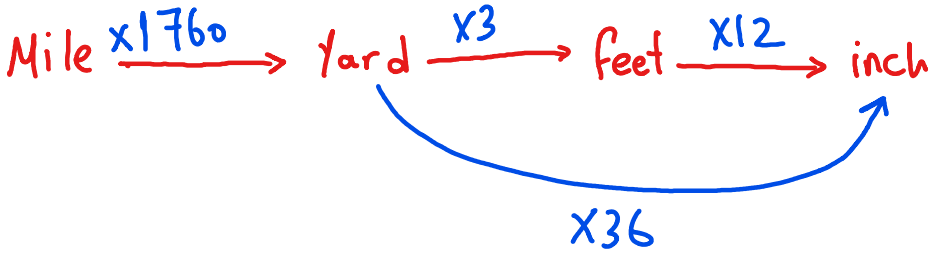
We need = 1000 − 820 = 180 ml

Unit 13 – L 6

Lesson 13-6

Solve More Problems That Involve Units of Measure

Book Page: 183

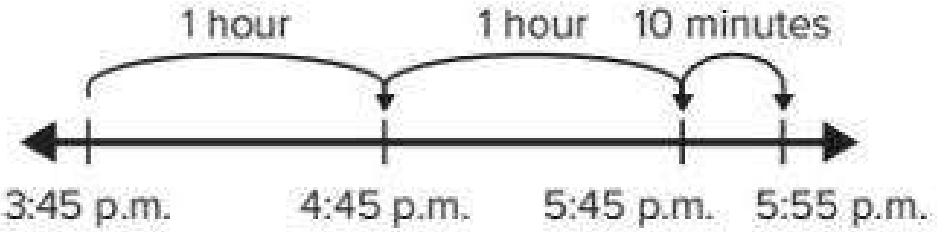


Learn

Lola started watching the movie at 3:45 p.m. and stopped watching at 5:55 p.m.

How long did she watch the movie?

Use an open number line to find the elapsed time.



The elapsed time from 3:45 p.m. to 5:55 p.m. is 2 hours and 10 minutes.

Math is... Choosing Tools

How does the number line help find elapsed time?

Representations can be used to solve problems involving units of time.

Work Together

Julian reads 2 hours each week. He keeps track of how long he reads each day in a reading log. How many more minutes does Julian need to read this week?

My Reading Log	
Day of the Week	Number of Minutes
Monday	32
Tuesday	18
Wednesday	26

$32+18+26=76$ min

2 hours $=120$ min

$120-76=44$ min

She needs 44 min

$$\begin{array}{r} {\scriptstyle 1\ 1} \\ 32 \\ 18 \\ +\ 26 \\ \hline 76 \end{array} \qquad \begin{array}{r} {\scriptstyle 1\ 10} \\ 120 \\ -\ 76 \\ \hline 44 \end{array}$$

Solve the problem.

1. Derinda's dog weighs 4 pounds. Elizabeth's dog weighs $5\frac{1}{4}$ pounds. What is the combined weight of the two dogs in ounces?

$4+5\frac{1}{4}=9\frac{1}{4}$ Pounds

$9\frac{1}{4}\times16=144+4=148$ ounce

pound $\xrightarrow{\times16}$ ounce

① $\begin{array}{r}9\\ \times\ 16\\ \hline 144\end{array}$

② $16\times\frac{1}{4}=\frac{16}{4}=4$

2. Fasil makes 3 gallons of soup. He puts the soup in 1-quart containers. How many containers can he fill

$3\times4=12$

3 gallon = 12 quart

gallon $\xrightarrow{\times4}$ quart

he can fill 12 containers

3. Jasmine has $3\frac{2}{3}$ yards of lace for 5 pillows. She uses 20 inches of lace for each pillow. How much lace does she have left?

$5\times20=100$ inches

$3\frac{2}{3}\times36=108+24=132$ inches

$132-100=32$

32 (left)

yard $\xrightarrow{\times36}$ inch

① $\begin{array}{r}36\\ \times\ 3\\ \hline 108\end{array}$

② $36\times\frac{2}{3}=\frac{72}{3}=24$

4. Helen worked in the garden from 2:20 p.m. to 6:15 p.m. How many minutes did she work in the garden?

$\begin{array}{r}180\\ 55\\ \hline 235\end{array}$

2:20 $\xrightarrow{60}$ 3:20 $\xrightarrow{60}$ 4:20 $\xrightarrow{60}$ 5:20 $\xrightarrow{55}$ 6:15

$\Rightarrow$ 235 minutes

$\begin{array}{r|l}72 & \\ 60 & 3\times20\\ \hline 12 & \\ 12 & 3\times4\\ \hline 0 & \end{array}$

5. A vine grows $\frac{1}{2}$ foot each week. How many inches does it grow in 6 weeks?

$\frac{1}{2}\times12=\frac{12}{2}=6$ inches

in 6 weeks = $6\times6=36$ inches

feet $\xrightarrow{\times12}$ inch

6. Hannah has 3 quarts of blueberries and 7 pints of raspberries. How many pints of berries does she have?

3 quart = $3\times2=6$ Pints

She have = $6+7=13$ Pints ✓

qt $\xrightarrow{\times2}$ Pt

7. How much more does a $6\frac{1}{2}$-ton elephant weigh than an 8,000-pound hippopotamus?

ton $\xrightarrow{\times 2000}$ Pound

$6\frac{1}{2} \times 2000 = 12000 + 1000 = 13000$

① $2000 \times 6 = 12000$

② $2000 \times \frac{1}{2} = 1000$

$\longrightarrow 13000 - 8000 = 5000$ Pounds

elephant weigh 5000 Pound more than hippo

8. One soccer game ends at 10:15 a.m. and the next soccer game starts at 1:20 p.m. How many minutes are there between the games?

$10:15 \xrightarrow{60} 11:15 \xrightarrow{60} 12:15 \xrightarrow{65} 1:20$

$60 + 60 + 65 = 185$ minutes

9. Jess swam 400 yards in 14 minutes. Christina swam 960 feet in the same amount of time. Who swam faster? Explain.

400 yards

$400 \times 3 = 1200$ feet $>$ 960 feet

Yard $\xrightarrow{\times 3}$ feet

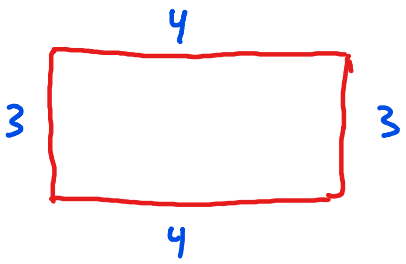
Jess swam faster than Christina

Unit 13 – L 7

Lesson 13-7

Solve Problems Using a Perimeter Formula

Book Page: 187



Perimeter = 4 + 4 + 3 + 3 = 14

= 2L + 2w

= 2x4 + 2x3 = 14

P = 2(L + w) = 2x7 = 14

Learn

Keira and her mother will build a fence for a rectangular vegetable garden.

How many yards of fencing do they need?

You can find the perimeter of the rectangular garden.

One Way Add all the side lengths.

$P = 12 + 6 + 12 + 6$

$P = 36$

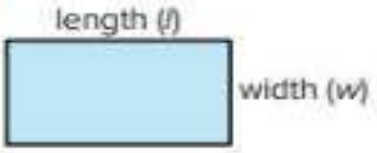
Two side lengths are 12 yards and two side lengths are 6 yards.

Kiera needs 36 yards of fencing.

Another Way Use a **formula**.

A formula is an equation that uses symbols to relate quantities.

$P = (2 \times l) + (2 \times w)$



$P = (2 \times 12) + (2 \times 6)$

$P = 24 + 12$

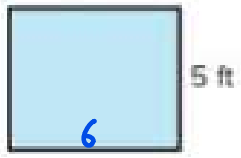
$P = 36$

Replace l and w with values.

Work Together

Kiera uses 48 yards of fencing to enclose a rectangular flower garden that has a length of 12 yards. What is the width of the flower garden?

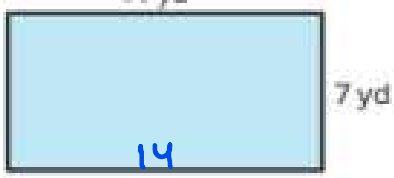
What is the missing value?

1. 

5 6

12
10
22

$P =$ 22 ft

2. 

7 14

1
28
14
42

14+14+7+7 = 42

$P =$ 42 yd

3. $l = 10$ miles, $w = 4$ miles

$P = 2 \times (10 +$ 4 $)$

$P =$ 28 miles 2x14

4. $l = 5$ km, $w = 2$ km

$P = (2 \times 5) + (2 \times$ 2 $)$

$P =$ 14 km 10+4

5. $l = 8$ m, $w = 5$ m

8 5

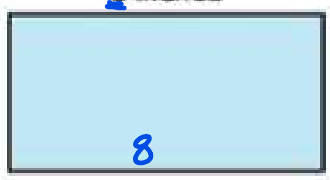
16
10
26

$P =$ 26 m

6. $l = 5$ units, $w = 5$ units

10
10
20

$P =$ 20 units

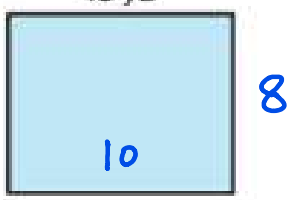
7. 

4=w 8

24-16=8
8÷2=4

$P = 24$ inches

$w =$ 4 inches

8. 

8 10 8

P=36 L=10
2L=20

36-20=16

2w=16

$P = 36$ yd

$w =$ 16 yd

9. A rectangular playground has a length of 72 feet and a width of 36 feet. What is the perimeter?

L=72
w=36

72 72 144

1
36
36
72

P= 72+72+36+36

P= 144+72

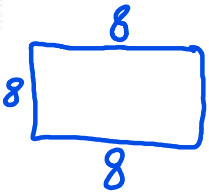
P= 216 feet

144
72
216

10. A rectangular piece of paper has a length of 8 inches. Its perimeter is 32 inches. What is the width of the paper?

$L = 8$

$P = 32$



$32 - 16 = 16$

$2w = 16$

$w = 8$ in

11. A rectangular tablecloth has a width of 60 inches. The length is $1\frac{1}{2}$ times the width. What is the perimeter? Justify your solution.

$w = 60$ in

$L = 60 \times 1\frac{1}{2} = 60 + \frac{60}{2} = 60 + 30 = 90$ in

$w = 60$

$l = 1\frac{1}{2} \times w$

$P = 2L + 2w = 180 + 120 = 300$ inches

12. **STEM Connection** Sam designs a rectangular building with one side measuring 1,000 meters and a perimeter of 2,800 meters. What is the length of the other side? Explain.

$w = 1000$

$P = 2800$

$2w = 2000$

$2800 - 2000 = 800$

$800 \div 2 = 400$ meters

What is the missing value? Use the perimeter formula to solve.

1.

$P =$ _____ feet

2.

$P =$ _____ yards

3. $l = 6, w = 7$

$P = 2 \times (6 +$ ___ $)$

$P =$ _____

4. $l = 9, w = 4$

$P = (2 \times 9) + (2 \times$ ___ $)$

$P =$ _____

5. $l = 6, w = 9$

$P =$ _____

6. $l = 5, w = 9$

$P =$ _____

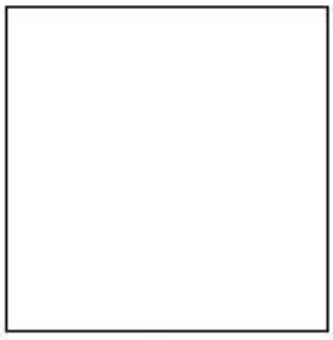
7.

$P = 18$ yards

$w = 3$ yards

$l =$ ___ yards

8.



$P = 24$ feet

$l = 5$ feet

$w =$ ___ feet

Unit 13 – L 8

Lesson 13-8

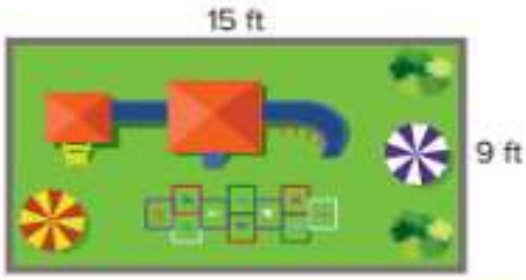
Solve Problems Using an Area Formula

Book Page: 191

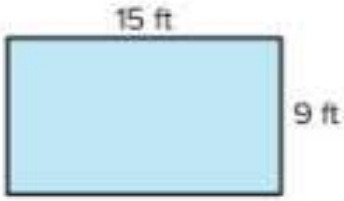
Learn

The school principal is purchasing artificial grass for a play area.

How many square feet of grass does she need to buy?



One Way Use multiplication.



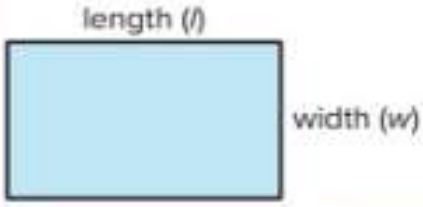
$A = 15 \times 9$

$A = 135$

The principal will need 135 square feet of grass.

Another Way Use a **formula**.

$A = l \times w$



$A = 15 \times 9$ — Replace *l* and *w* with values.

$A = 135$

You can use a formula to find the area of a rectangle.

Math is... in My World

How does a representation help you determine the area of a rectangle?

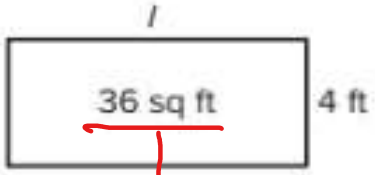
Work Together

What is the length of the rectangle?

$A = L \times w$

$36 = L \times 4$

$L = 9$ ft



$9 \times 4 = 36$

What is the area?

1. 

$A =$ 35 square ft

7 x 5 = 35 sq ft

2. 

$A =$ 105 square yd

7 x 15

3 15 × 7 = 105

3. $l = 12$ meters, $w = 6$ meters

$A =$ 72 square meters

A = l x w

= 12 x 6 = 72

1 12 × 6 = 72

4. $l = 25$ km, $w = 4$ km

$A =$ 100 square km

A = 25 x 4

2 25 × 4 = 100

5. $l = 8$ cm, $w = 5$ cm

$A =$ 40 square cm

A = 8 x 5 = 40

6. $l = 22$ miles, $w = 5$ miles

$A =$ 110 square miles

A = 22 x 5

1 22 × 5 = 110

What is the missing value?

7.

$A = 44$ square miles

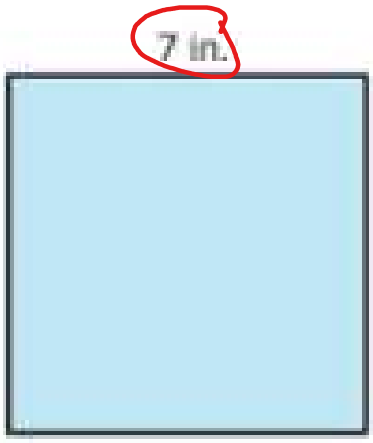
$l =$ _____ miles

$A = L \times w$

$44 = L \times 4$

$L = 11$ miles

8.



$A = 49$ square inches

$w =$ _____ inches

$A = L \times w$

$49 = 7 \times w$

$w = 7$ in

Solve the problem.

9. A rectangular garden has a width of 9 feet and an area of 144 square feet. What is the length of the garden?

$A = L \times w$

$144 = L \times 9$

$144 \div 9 = 16$

$L = 16$ feet

144	
90	9 × 10
54	
54	9 × 6
00	

10. A square piece of cardboard has a side length of 18 inches. What is the area of the piece of cardboard? Show your work.

$A = 18 \times 18$

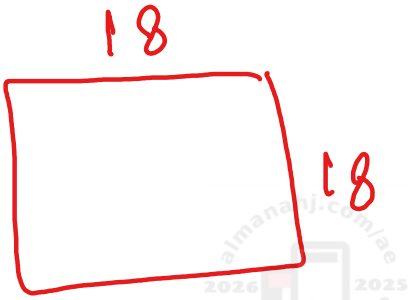
$= 324$ sq in

$L = w$

$8 \times 18 = 144$

$10 \times 18 = 180$

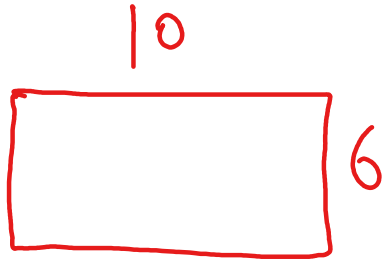
324



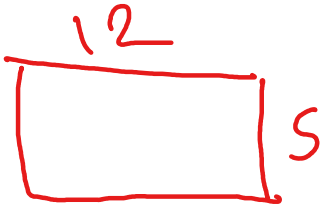
٤٩

11. A rectangular park has an area of 60 square miles. What are 3 possible length and width combinations? How did you find your answer?

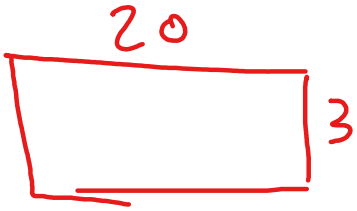
$A = 60$ $A = L \times W$



$A = 6 \times 10 = 60$



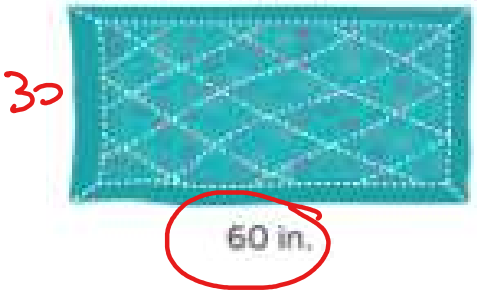
$A = 5 \times 12 = 16$



$A = 20 \times 3 = 60$

12. If the width of the blanket is half the length, what is the area of the blanket?

30



$A = L \times W$

$= 60 \times 30 = 1800$ sq in

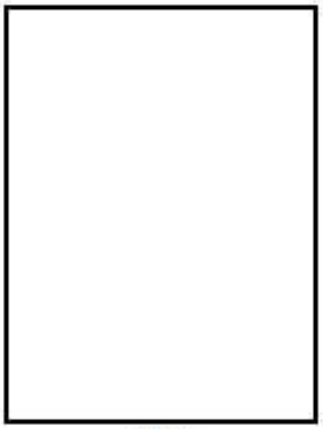
Practice U13 L8

What is the missing value? Use the area formula to solve.

1.

$A =$ _____ square feet

2.



$A =$ _____ square feet

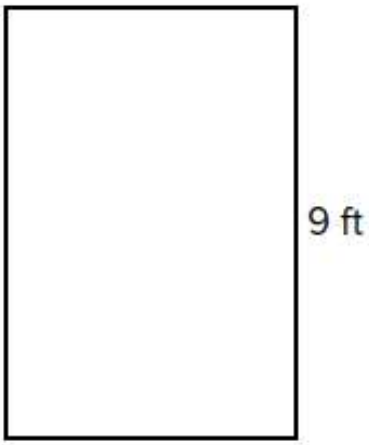
3. $l = 15, w = 7$

$A =$ _____

4. $l = 21, w = 8$

$A =$ _____

5.



$A = 45$ square feet

$l = 9$ feet

$w =$ ___ feet

6.

5

$A = l \times w$

$30 = 6 \times w$

$w = 5$ ft

$A = 30$ square feet

$l = 6$ feet

$w =$ ___ feet

$P = 12 + 10 = 22$ feet

Unit 13 – L 9

Lesson 13-9

Solve Problems Involving Perimeter and Area

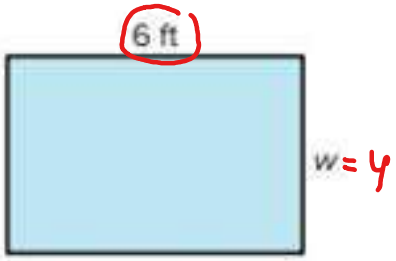
Book Page: 195

Book Page: 196

Learn

Danesh and Phillipe will build a sandbox. The area of the sandbox will be 24 square feet.

What will be the perimeter of the sandbox?



$24 = 6 \times w$ $\quad w = 4$

$P = 12 + 8 = 20$

What is the unknown measurement?

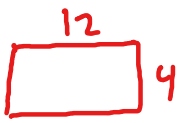
1. A billboard has the following measurements.

a. What is the length of the billboard?

$48 = l \times 4$

$l =$ 12 yd

48 | 4 × 10
40 | 4 × 2
8



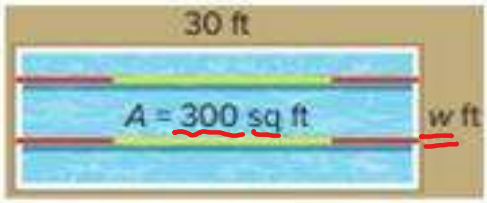
b. What is the perimeter?

$P = 2 \times ($ 12 $+ 4)$

$P = 2 \times$ 16

$P =$ 32 yd

2. A lap pool has the following measurements.



a. What is the width of the lap pool?

$300 = 30 \times w \rightarrow 10$

$w =$ 10 ft

b. What is the perimeter?

$P = 2 \times (30 +$ 10 $)$

$P = 2 \times$ 40

$P =$ 80 ft

60 + 20 = 80

24 − 8 = 32

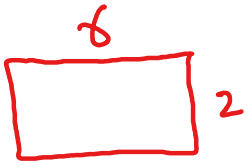
3. A rectangular koi pond has an area of 12 square feet and a width of 2 feet. What is the length and perimeter?

$A = 12$
$w = 2$

$l =$ _____ ft $P =$ _____ ft

$12 = L \times 2$ $L = 6$ ft

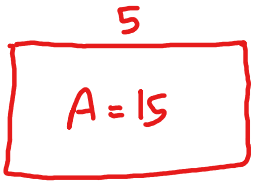
$P = 12 + 4$
$= 16$ feet



4. A rectangular rug has an area of 15 square feet and a width of 3 feet. What is the length and perimeter?

$A =$

$l =$ 5 ft $P =$ 16 ft

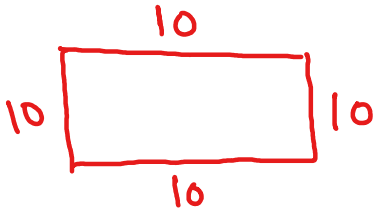


$L = 5$ $P = 10 + 6 = 16$ ft

5. A rectangular greenhouse has a perimeter of 40 feet and length of 10 feet. What is the area?

$A =$ 100 sq ft

$P = 40$ feet
$w = 10$



$40 - 20 = 20$

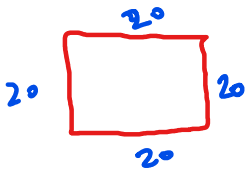
$20 \div 2 = 10$

$\therefore A = 10 \times 10 = 100$ sq ft

6. A square frame has an area of 400 square inches. What are the side lengths?

$L = w$

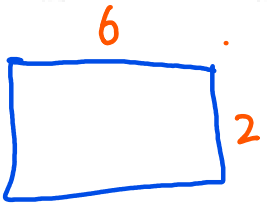
$l =$ _____ in.



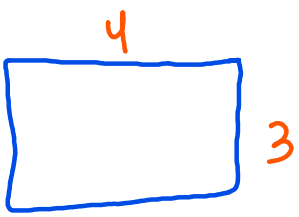
$400 = L \times w$
$400 = 20 \times 20$

$\therefore L = 20$ $w = 20$

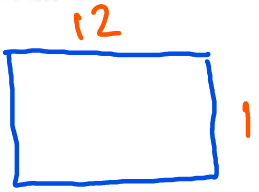
7. A rectangular park has an area of 12 square miles. What are 3 possible perimeters in miles? Justify your solutions.



$P = 12 + 4 = 16$



$P = 8 + 6 = 14$

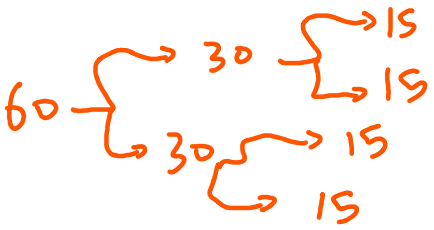


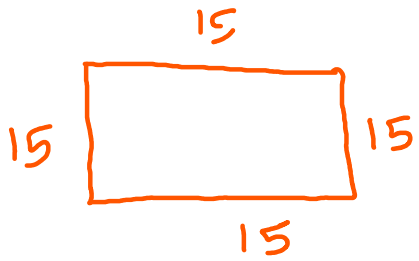
$P = 24 + 2 = 26$

$A = 12$ Sq mile

$L \times W$

8. A gardener has 60 inches of edging material to surround a rectangular flowerbed. What is the greatest possible area of the flowerbed? Justify your solution





$60 \div 2 = 30$

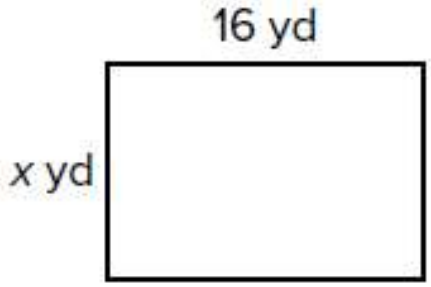
$A = 15 \times 15 = 225$ sq inches

$15 \times 10 = 150$

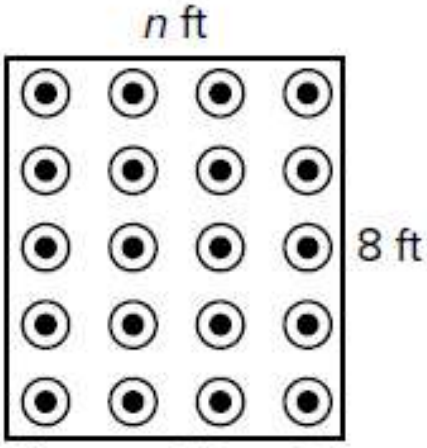
$15 \times 5 = 75$

Practice U13 L9

1. The perimeter of the pool is 52 yards. What is the area?



2. Find the perimeter of the garden.



Unit 13 – L 10

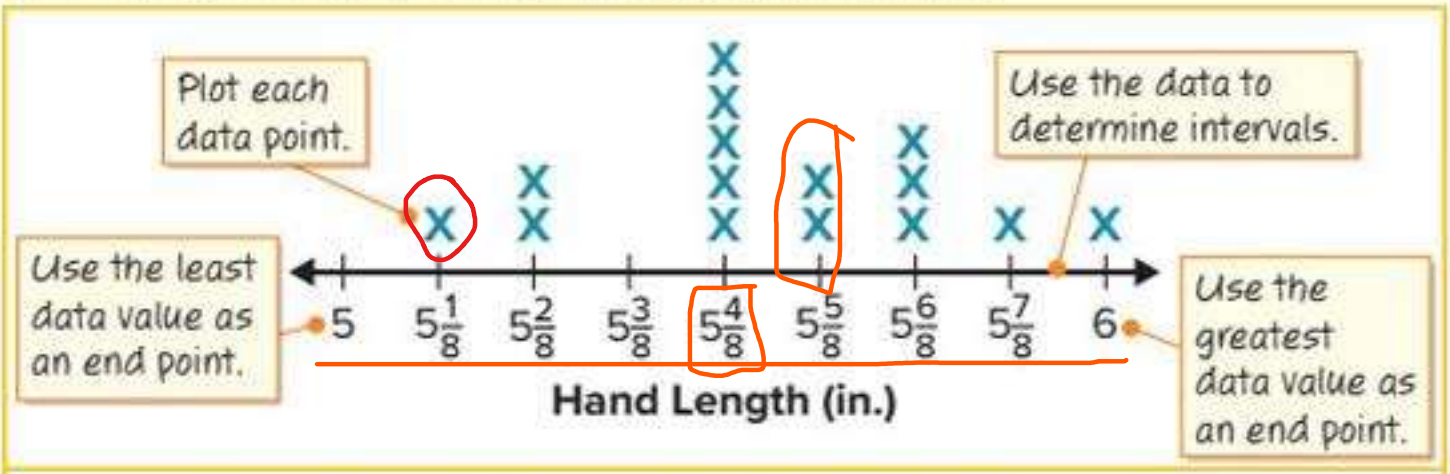
Book Page: 199

Learn

Kade measured the hand lengths of her class to the nearest eighth inch.

Length (in.)	$5\frac{6}{8}$	$5\frac{1}{8}$	$5\frac{2}{8}$	$5\frac{4}{8}$	5	$5\frac{5}{8}$	$5\frac{7}{8}$	$5\frac{3}{8}$	6
Count	3	1	2	5	0	2	1	0	1

How can Kade display the hand lengths in a line plot?



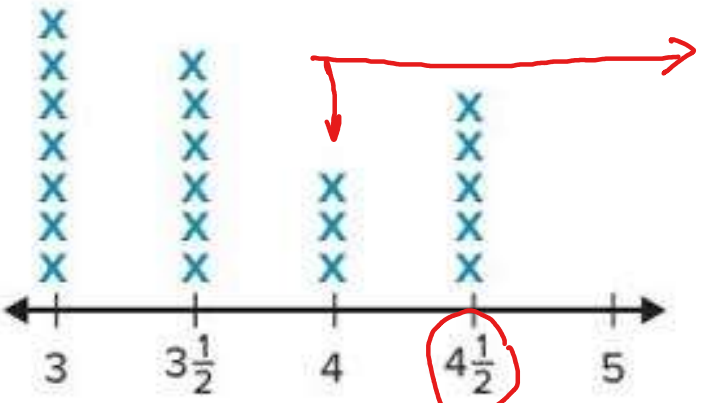
You can interpret data displayed on the line plot and draw conclusions.

- The difference between the longest and shortest hand length is $\frac{7}{8}$ inch: $6 - 5\frac{1}{8} = \frac{7}{8}$.
- The most common hand length was $5\frac{4}{8}$ inches.
- No one had a hand length of 5 inches or $5\frac{3}{8}$ inches.

Math is... Thinking

How does a line plot help you analyze data?

Use the line plot for exercises 1–4.



Mr. Cobey's Class
Long Jump Distances (ft)

1. What was the greatest distance jumped?

$4\frac{1}{2}$ ft

2. How many students jumped 4 feet or greater?

8 students

3. How many students jumped $4\frac{1}{2}$ feet?

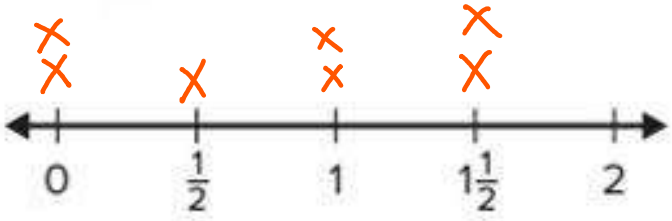
5 students

4. How many students jumped $3\frac{1}{2}$ feet?

6 students

Use the data for exercises 5 and 6.

5. The table shows the time Jackson spent practicing the saxophone each day. Display the data on a line plot.



(hours)

Saxophone Practice (hours)	
Monday	$1\frac{1}{2}$
Tuesday	0
Wednesday	$\frac{1}{2}$
Thursday	1
Friday	1
Saturday	0
Sunday	$1\frac{1}{2}$

6. How many hours did Jackson practice in all?

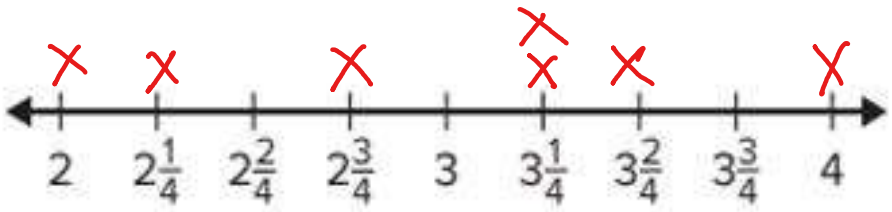
$5\frac{1}{2}$ hours $\frac{1}{2}+1+1+1\frac{1}{2}+1\frac{1}{2}$

Book Page: 202

The table shows the distances Kireka's family hiked each day during a family vacation. Use the data in the table for exercises 7–10.

Distance Hiked (miles)	
Monday	$3\frac{1}{4}$
Tuesday	2
Wednesday	$2\frac{2}{4}$
Thursday	$2\frac{1}{4}$
Friday	4
Saturday	$2\frac{3}{4}$
Sunday	$3\frac{1}{4}$

7. Draw a line plot to display the data.



8. Which distance was most frequently hiked?

$3\frac{1}{4}$ miles

9. What is the difference between the longest and shortest distance Kireka's family hiked?

2 miles

longest = 4
shortest = 2

4 - 2 = 2

Unit 13 – L 11

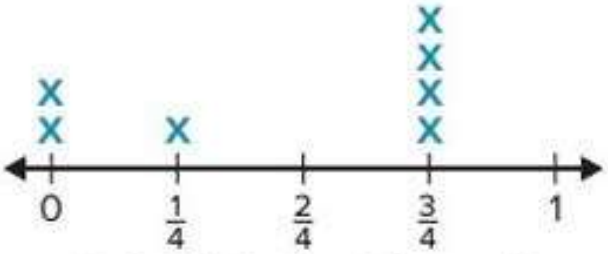
Lesson 13-11

Solve Problems Involving Data on a Line Plot

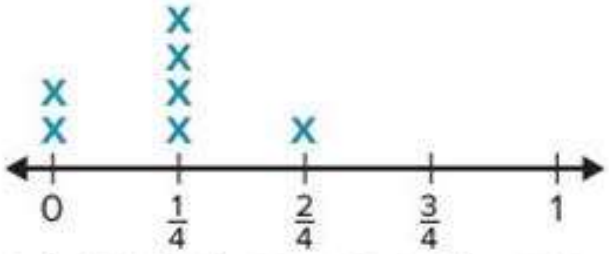
Book Page: 203

Learn

The line plots show the amount of rainfall in two cities in one week.



Rainfall (in.) in Chicago, IL
February 1–7



Rainfall (in.) in New York City, NY
February 1–7

What is the difference between the greatest amount of rainfall in New York City and the greatest amount of rainfall in Chicago?

Find the greatest amount of rainfall represented in each line plot and subtract to find the difference.

$\frac{3}{4} - \frac{2}{4} = \frac{1}{4}$

The difference in rainfall is $\frac{1}{4}$ inch.

Math is... Precision

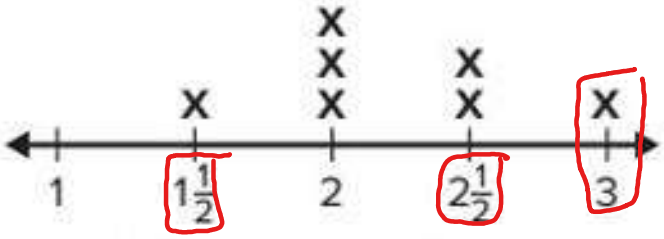
Why are there 7 Xs in each of the line plots?

You can also find the total rainfall in New York City for the week by adding the data values in the New York City line plot.

$0 + 0 + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{2}{4} = \frac{6}{4}$

New York City's total rainfall for the week was $1\frac{2}{4}$ inches.

Use the line plot for exercises 1–4.



1. What is the difference between the lengths of the longest movie and the shortest movie?

$3 - 1\frac{1}{2} = 1\frac{1}{2}$ hours

$3 - 1 = 2$

$2 - \frac{1}{2} = 1\frac{1}{2}$

2. What is the combined length of the shortest movie and the longest movie?

$3 + 1\frac{1}{2} = 4\frac{1}{2}$ hours

$3 + 1 = 4$

$4 + \frac{1}{2} = 4\frac{1}{2}$

3. How long would you need to watch all the movies?

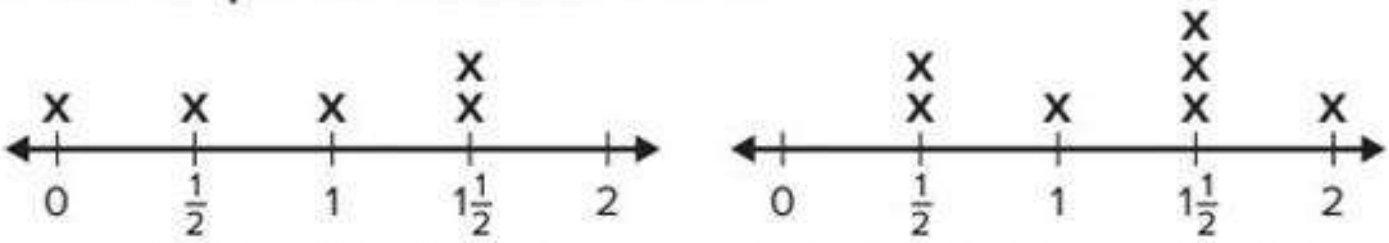
$1\frac{1}{2} + 2 + 2 + 2 + 2\frac{1}{2} + 2\frac{1}{2} + 3 = 15\frac{1}{2}$ hours

4. If the two longest movies were playing one right after the other, would you be able to watch both movies in 5 hours? Explain.

$2\frac{1}{2} + 3 = 5\frac{1}{2}$ hours > 5 Not enough

Book Page: 205

Use the line plots to answer exercises 5–8.



Daily Band Practice (hr)

Daily Basketball Practice (hr)

5. How many hours were spent practicing band?

$\frac{1}{2} + 1 + 1\frac{1}{2} + 1\frac{1}{2} = 4\frac{1}{2}$ hr

6. How many hours were spent practicing basketball?

$\frac{1}{2} + \frac{1}{2} + 1 + 1\frac{1}{2} + 1\frac{1}{2} + 1\frac{1}{2} + 2 = 8\frac{1}{2}$ hrs

7. If you wanted to practice both activities for the same amount of time each week, which activity would you need to practice more? By how much?

Band, $8\frac{1}{2} - 4\frac{1}{2} = 4$ hours

8. How much time was spent practicing both activities throughout the week?

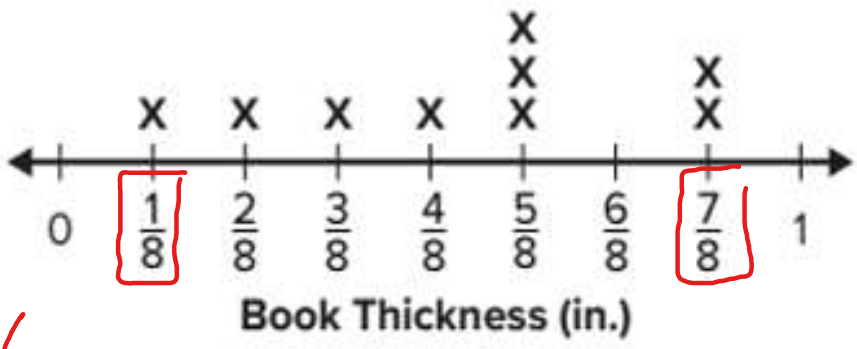
$4\frac{1}{2} + 8\frac{1}{2} = 13$ hours

Book Page: 200

Use the line plot to answer exercises 9–11.

25

9. What is the difference in thickness between the thickest book and the thinnest book?



$\frac{7}{8} - \frac{1}{8} = \frac{6}{8}$

10. What is the combined thickness of the $\frac{5}{8}$-inch books?

+

8

16

$\frac{5}{8} + \frac{5}{8} + \frac{5}{8} = \frac{15}{8} = 1\frac{7}{8}$ inches

11. Error Analysis Caleb says the combined thickness of all the books is $2\frac{6}{8}$ inches. How would you respond to Caleb?

8
16
24
32
40

$\frac{1}{8} + \frac{2}{8} + \frac{3}{8} + \frac{4}{8} + \frac{15}{8} + \frac{14}{8} = \frac{39}{8}$

$4\frac{7}{8} > 2\frac{6}{8}$