

حلول مراجعة نهائية وفق الهيكل الوزاري منهج ريفيل



تم تحميل هذا الملف من موقع المناهج الإماراتية

موقع المناهج ← المناهج الإماراتية ← الصف الخامس ← رياضيات ← الفصل الثالث ← ملفات متنوعة ← الملف

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ملفات اكتب للمعلم اكتب للطالب ا اختبارات الكترونية ا اختبارات ا حلول ا عروض بوربوينت ا أوراق عمل
منهج انجليزي ا ملخصات وتقارير ا مذكرات وبنوك ا الامتحان النهائي للمدرس

المزيد من مادة
رياضيات:

التواصل الاجتماعي بحسب الصف الخامس



صفحة المناهج
الإماراتية على
فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

المزيد من الملفات بحسب الصف الخامس والمادة رياضيات في الفصل الثالث

مراجعة نهائية وفق الهيكل الوزاري منهج ريفيل بلا الحل

1

تجميعية أسئلة نهائية وفق الهيكل الوزاري حسب منهج بريدج

2

عرض بوربوينت حل تجميعية شاملة وفق الهيكل الوزاري منهج بريدج

3

تجميعية مراجعة شاملة وفق الهيكل الوزاري المسار المتقدم

4

حل أوراق عمل الوحدة Geometry 13 Unit الهندسة منهج ريفيل

5

GRADE 5 TERM 3 MATH

REVISION EOT EXAM COVERAGE 2024-2025



Unit 11

Divide fractions

FRQ			
	Lesson Name	Example/Exercise	Page
Q-1	U11L3 – Represent Division of Whole Numbers by Unit Fractions	Learn + Work Together	Page :- 138
		Exercise:- (1 - 9)	Page :- 139
		Exercise:- (10 - 14)	Page :- 140
Q-2	U11L6 – Divide Unit Fractions by Non-Zero Whole Numbers	Learn + Work Together	Page :- 150
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Q1 - PART - 2

M11-3

Represent Division of Whole Numbers by Unit Fractions

Learn + Work Together

Page:138

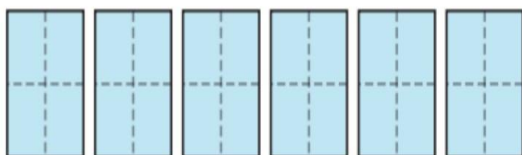
Learn

Meghan has 6 sheets of paper. She uses $\frac{1}{4}$ sheet of paper to make one card.

How many cards can Meghan make?

A division equation can represent the problem.

Partition 6 wholes into fourths.



There are 24 one-fourths in all 6 wholes.

$$6 \div \frac{1}{4} = 24.$$

Megan can make 24 cards.

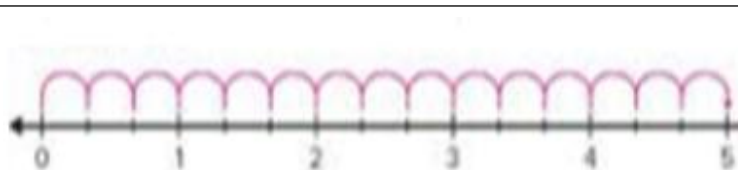
Math is... In My World

Describe other examples of when you might need to find how many fractional parts are in a whole.

A representation can help you divide a whole number by a unit fraction.

Work Together

Joey has a 5-foot board. He cuts the board into pieces that are each $\frac{1}{3}$ foot long. How many $\frac{1}{3}$ -foot boards will Joey have? Use the number line to help you solve.



Joey will have 15 ($\frac{1}{3}$) foot boards

138 Lesson 3 • Represent Division of Whole Numbers by Unit Fractions

Q1 - PART - 2

M11-3

Represent Division of Whole Numbers by Unit Fractions

(1-9)

Page:139

What is the quotient? Use a representation to solve.

1. $6 \div \frac{1}{3} = \underline{18}$

2. $9 \div \frac{1}{4} = \underline{36}$

$6 \times 3 = 18$

$9 \times 4 = 36$

3. $7 \div \frac{1}{8} = \underline{56}$

4. $5 \div \frac{1}{5} = \underline{25}$

$7 \times 8 = 56$

$5 \times 5 = 25$

5. $4 \div \frac{1}{2} = \underline{8}$

6. $2 \div \frac{1}{9} = \underline{18}$

$4 \times 2 = 8$

$2 \times 9 = 18$

7. $4 \div \frac{1}{6} = \underline{24}$

8. $3 \div \frac{1}{10} = \underline{30}$

$4 \times 6 = 24$

$3 \times 10 = 30$

What is the quotient? Use a representation to solve.

9. Jamal cuts the board into pieces that are each $\frac{1}{2}$ foot long. How many pieces does he have?

$7 \div \frac{1}{2} = 7 \times 2 = 14$



7 ft

Q1 - PART - 2

M11-3

Represent Division of Whole Numbers by Unit Fractions

(10-14)

Page:140

- 10. Error Analysis** Kevin has a 5 feet length of wrapping paper. He uses a $\frac{1}{3}$ foot length of wrapping paper for each present. He writes an equation to help him determine how many presents he can wrap using all of the paper. Is Kevin correct? Explain your thinking.

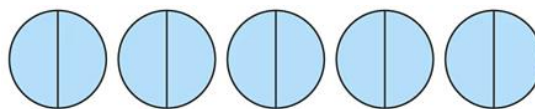
No, Kevin multiplied instead of dividing. His answer should have been 15.

$5 \div \frac{1}{3} = 5 \times 3 = 15$ (He can wrap 15 presents.)

- 12.** A house painter pours the paint from this 5-gallon can into smaller cans that each hold $\frac{1}{2}$ gallon. How many small cans will he fill? Use a fraction model to justify your answer.



$$5 \div \frac{1}{2} = 5 \times 2 = 10$$



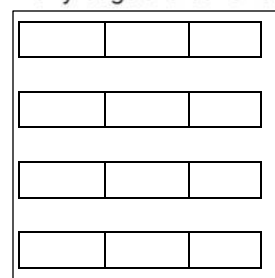
- 11.** Mrs. Lopez has 2 large pizzas for her class to share. Each slice is $\frac{1}{8}$ of the pizza. How many slices of pizza does Mrs. Lopez have?

$$2 \div \frac{1}{8} = 2 \times 8 = 16$$

Mrs. Lopez have 16 slices of pizza.

- 13.** A baker has 4 pounds of flour. She divides it evenly into bags that hold $\frac{1}{3}$ pound each. Show how many bags the baker can fill using a fraction model.

$$4 \div \frac{1}{3} = 4 \times 3 = 12$$



- 14. Extend Your Thinking** Find a whole number and unit fraction whose quotient is 24.

$8 \div \frac{1}{3} = 8 \times 3 = 24$ OR $12 \div \frac{1}{2} = 12 \times 2 = 24$
OR $6 \div \frac{1}{4} = 6 \times 4 = 24$

Q2 - PART - 2

M11L6

Divide Unit Fractions by Non-Zero Whole Numbers

(Learn + Work Together)

Page 150

Learn

Ms. Myers pours an equal amount of milk in each of 6 cups.

If she pours all of the milk, how can you determine what fraction of a gallon is in each cup?

A division equation can represent the problem.



You can write the division equation as a multiplication equation.

$$c = \frac{1}{2} \div 6$$

$$c = \frac{1}{2} \times \frac{1}{6}$$

$$c = \frac{1}{12}$$

There is $\frac{1}{12}$ gallon in each of the 6 cups.

Dividing by 6 is the same as multiplying by $\frac{1}{6}$.

Math is... Structure

If an equation is true, why are all the equations related to it true?

Use multiplication to check the answer.

$$\frac{1}{12} \times 6 = \frac{6}{12} = \frac{1}{2}$$

The calculated quotient is correct.

Work Together

Explain why $\frac{1}{5} \div 3 = \frac{1}{15}$.

We can write the equation as a multiplication equation which will be:

$$\begin{aligned} & \frac{1}{5} \div 3 \\ &= \frac{1}{5} \times \frac{1}{3} \\ &= \frac{1}{15} \end{aligned}$$

Division of a unit fraction by a non-zero whole number can be rewritten as multiplication by a unit fraction.

Q2 - PART - 2

M11L6	Divide Unit Fractions by Non-Zero Whole Numbers	(1-9)	Page:151
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Is the quotient correct or incorrect? How do you know?

1. $\frac{1}{2} \div 3 = \frac{1}{6}$

2. $\frac{1}{4} \div 2 = \frac{1}{2}$

Correct:

$\frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$

incorrect:

$\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$

3. $\frac{1}{3} \div 6 = \frac{1}{9}$

4. $\frac{1}{6} \div 4 = \frac{1}{24}$

Incorrect:

$\frac{1}{3} \times \frac{1}{6} = \frac{1}{18}$

correct:

$\frac{1}{6} \times \frac{1}{4} = \frac{1}{24}$

What is the quotient?

5. $\frac{1}{5} \div 5 = \frac{1}{25}$

6. $\frac{1}{7} \div 2 = \frac{1}{14}$

$\frac{1}{5} \times \frac{1}{5} = \frac{1}{25}$

$\frac{1}{7} \times \frac{1}{2} = \frac{1}{14}$

7. $\frac{1}{8} \div 10 = \frac{1}{80}$

8. $\frac{1}{9} \div 3 = \frac{1}{27}$

$\frac{1}{8} \times \frac{1}{10} = \frac{1}{80}$

$\frac{1}{9} \times \frac{1}{3} = \frac{1}{27}$

9. A garden has an area of $\frac{1}{10}$ acre. What fraction of an acre is each of the 4 sections?



$\frac{1}{10} \div 4$
 $= \frac{1}{10} \times \frac{1}{4}$
 $= \frac{1}{40}$ **acres**

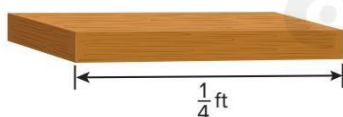
Q2 - PART - 2

M11L6	Divide Unit Fractions by Non-Zero Whole Numbers	(10-13)	Page:152
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10. **Error Analysis** Peter buys $\frac{1}{4}$ pound of ham. Peter says that if he makes 2 ham sandwiches, each will have $\frac{1}{2}$ pound of ham. Is Peter correct? Explain why or why not.

No, Peter is not correct. He divided 4 by 2 instead of multiplying $\frac{1}{2} \times \frac{1}{4}$, which is $\frac{1}{8}$.

11. Theo cuts this board into 4 equal sections. What is the length of each section?



$\frac{1}{4} \div 4$
 $= \frac{1}{4} \times \frac{1}{4}$
 $= \frac{1}{16}$ **ft.**

12. Sasha spends $\frac{1}{2}$ of each school day in math class, science class, and history class. If the time spent in each class is the same, what fraction of the school day does Sasha spend in math class?

Math, Science and History class = 3 classes
 $\frac{1}{2} \div 3$
 $= \frac{1}{2} \times \frac{1}{3}$
 $= \frac{1}{6}$ **of the school day**

13. **Extend Your Thinking** When a unit fraction is divided by a non-zero whole number, will the quotient always be less than the unit fraction? Explain why or why not.

Yes, the fraction is being divided into smaller pieces, so the quotient will be less than the unit fraction.

Unit 11

Divide fractions

MCQ

	Lesson Name	Example/Exercise	Page
Q-6	U11L1 – Relate Fractions to Division	Exercise:- (1 - 9)	Page :- 131
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Q-7	U11L2 – Solve Problems Involving Division	Exercise:- (1 - 7)	Page :- 135
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Q-8	U11L4 – Divide Whole Numbers by Unit Fractions	Exercise:- (1 - 11)	Page :- 143
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Q-9	Represent Division of Unit Fractions by Non-Zero Whole Numbers	Exercise:- (1 - 7)	Page :- 147
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Q6 - PART - 1

M11-1	Relate Fractions to Division	(1-9)	Page:131
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1. Marie equally divides 6 bags of soil into these flowerpots. How many bags of soil are in each pot?



$$6 \div 4 = \frac{6}{4} \text{ OR } 1 \frac{2}{4}$$

Complete the equation.

2. $\frac{5}{\quad} \div \frac{9}{\quad} = \frac{5}{9}$

3. $\frac{13}{\quad} \div \frac{4}{\quad} = \frac{13}{4}$

4. $3 \div 8 = \frac{3}{8}$

5. $7 \div 9 = \frac{7}{9}$

6. $\frac{1}{3} \times 7 = 7 \div 3$

7. $\frac{1}{4} \times 5 = 5 \div 4$

8. A farmer pours 3 pounds of chicken feed equally into 4 bags. What is the weight of the chicken feed in each bag?

A. $\frac{3}{4}$ pound

B. $1 \frac{3}{4}$ pounds

C. $\frac{4}{3}$ pounds

D. $1 \frac{1}{4}$ pounds

9. An artist divides 4 pounds of clay equally into 3 containers. What is the weight of the clay in each container? Circle all correct answers.


A. $1 \frac{1}{4}$ pounds

B. $1 \frac{1}{3}$ pounds


C. $\frac{3}{4}$ pound

D. $\frac{4}{3}$ pounds

Q6 - PART - 1

M11-1	Relate Fractions to Division	(10-13)	Page:132
<p>10. Aki pours the same amount of aquarium pebbles from this bag into each of 3 aquariums. What is the weight of the pebbles in each aquarium?</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $7 \div 3 = 2\frac{1}{3}$ OR $2\frac{1}{3}$ </div> 		<p>11. What is the unknown divisor? Explain how you know.</p> $2 \div \underline{3} = \frac{2}{3}$ <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>3, in a fraction, the divisor is the denominator.</p> </div>	
<p>12. Error Analysis Spencer divides 6 pounds of food from the food drive into 3 boxes. He says each box has $\frac{3}{6}$ pounds of food. Is he right? How do you know?</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>No, Spencer divided 3 pounds of food into 6 boxes instead of 6 pounds into 3 boxes. The correct answer is $2\frac{2}{3}$ OR 2.</p> </div>		<p>13. Extend Your Thinking Write a word problem involving division in which the quotient is $\frac{8}{5}$.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>This answer is just an example; students can make their own word problems. A baker has 8 cups of frosting and wants to divide it equally among 5 cakes. How much frosting will each cake get?</p> </div>	

Q7 - PART - 2

M11-2	Solve Problems Involving Division	(1-7)	Page:135
<p>Solve each problem. If there is a remainder, decide how to represent and interpret the remainder.</p> <p>1. Grace walked the number of miles shown over the course of 7 days. She walked the same number of miles each day. How many miles did she walk each day?</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> $20 \div 7 = 2\frac{6}{7}$ She walked $2\frac{6}{7}$ miles each day </div> 		<p>3. Dawn made 50 bracelets. She gave each of her 12 friends the same number of bracelets. How many bracelets did Dawn give to each of her friends?</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> $50 \div 12 = 4$ remainder 2 She gave 4 bracelets to each of her friends, and there were 2 left over. </div>	
<p>2. There were 210 balloons at a fair. Each of the 50 children that attended the fair got the same number of balloons. How many balloons did each child get?</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> $210 \div 50 = 4$ remainder 10 Each child gets 4 balloons and there were 10 left over. </div>			

Q7 - PART - 2

M11-2	Solve Problems Involving Division	(1-7)	Page:135
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Would you write the quotient for the problem with a remainder or as a mixed number?

4. Equal amounts of juice are poured into different glasses.

A. remainder

B. mixed number

Because juice can be shared n parts.

5. The same number of books must be put on each shelf.

A. remainder

B. mixed number

Books can't be cut. If they don't equally, some books will be left over.

6. A dog is fed the same amount of food every day.

A. remainder

B. mixed number

Dog food can be measured. You can give part of food each day.

7. Someone gives out the same number of flowers to each of 5 friends.

A. remainder

B. mixed number

You can't break flowers in half. If there aren't enough to share equally, some will be left over.

Q7 - PART - 2

M11-2	Solve Problems Involving Division	(8--12)	Page:136
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Solve each problem. If there is a remainder, decide how to represent and interpret the remainder.

8. A water cooler holds 80 cups of water. If 30 people each get an equal amount of water, how many cups of water does each person get?

$$80 \div 30 = 2^{20} / 30 = 2^{2/3}$$

Each person gets $2^{2/3}$ cups of water

9. A baker has this bag of flour. He puts equal amounts of flour in 4 canisters. How many pounds of flour are in each canister?

$$25 \div 4 = 6^{1/4}$$

There are $6^{1/4}$ pounds of flour in each



10. Ryan has 320 pencils. He gives an equal number of pencils to each of 15 friends. How many pencils does he give each friend?

$$320 \div 15 = 21 \text{ remainder } 5$$

He gives each friend 21 pencils and he has 5 pencils left over.

11. Rose has a piece of ribbon that is 150 inches long. She is cutting the ribbon into 20 equal pieces. How long will each piece be?

$$150 \div 20 = 7^{10} / 20 = 7^{1/2}$$

Each piece will be $7^{1/2}$ inches long

- 12- Extend Your Thinking Drew has 169 toy cars that he is organizing into boxes. Each box can hold 30 cars. How many boxes does he need?

$$169 \div 30 = 5 \text{ remainder } 19$$

Drew needs 6 boxes so that he can fit the remainder of his cars. In 5 boxes he can fit 150 cars, so he needs another box for the remaining 19 cars.

Q8- PART - 1

M11-4

Divide Whole Numbers by Unit Fractions

(1-11)

Page:143

What is the quotient?

1. $3 \div \frac{1}{5} = \underline{15}$

2. $6 \div \frac{1}{3} = \underline{18}$

3. $4 \div \frac{1}{4} = \underline{16}$

4. $7 \div \frac{1}{2} = \underline{14}$

5. $12 \div \frac{1}{3} = \underline{36}$

$3 \times 5 = 15$

$6 \times 3 = 18$

$4 \times 4 = 16$

$7 \times 2 = 14$

$12 \times 3 = 36$

6. $9 \div \frac{1}{5} = \underline{45}$

7. $6 \div \frac{1}{6} = \underline{36}$

8. $10 \div \frac{1}{10} = \underline{100}$

9. $8 \div \frac{1}{7} = \underline{56}$

$9 \times 5 = 45$

$6 \times 6 = 36$

$10 \times 10 = 100$

$8 \times 7 = 56$

Q8- PART - 1

M11-4

Divide Whole Numbers by Unit Fractions

(1-11)

Page:143

10. Keri is making trail mix that contains $\frac{1}{3}$ cup of sunflower seeds per serving. How many servings can she make with this bag?



$2 \div \frac{1}{3}$

$= 2 \times 3$

$= 6$

Keri can make 6 servings.

11. A clock chimes every $\frac{1}{4}$ hour. How many times will the clock chime in 6 hours?

$6 \div \frac{1}{4}$

$= 6 \times 4$

$= 24$

He clock will chime 24 times

Q8- PART - 1

M11-4

Divide Whole Numbers by Unit Fractions

(12-15)

Page:144

12. Mia hiked 4 miles. There were trail markers every $\frac{1}{10}$ mile.
How many trail markers did Mia see during her hike?

$$\begin{aligned} 4 \div \frac{1}{10} \\ = 4 \times 10 \\ = 40 \\ \text{Mia seen 40 markers.} \end{aligned}$$

13. **STEM Connection** Poppy is visiting a park that is 15 acres. The park is divided into sections that are each $\frac{1}{3}$ acre. How many sections does the park have?

$$\begin{aligned} 15 \div \frac{1}{3} \\ = 15 \times 3 \\ = 45 \\ \text{The park has 45 sections.} \end{aligned}$$



14. Jaxon has 10 gallons of punch. He pours the punch into pitchers that each hold $\frac{1}{2}$ gallon. How many pitchers does Jaxon use?

$$\begin{aligned} 10 \div \frac{1}{2} \\ = 10 \times 2 \\ = 20 \\ \text{Jaxon uses 20 pitchers.} \end{aligned}$$

15. **Extend Your Thinking** When a whole number is divided by a fraction that is less than 1, will the quotient always be greater than the whole number? Explain why or why not.

Yes, the whole number is being divided into more parts, so the quotient (the answer) will be greater.

Q9 - PART - 1

M11L5

Represent Division of Unit Fractions by Non-Zero Whole Numbers

(1-11)

Page:147&148

What is the quotient? Use a representation to solve.

1. $\frac{1}{3} \div 4 =$ _____

- A. $\frac{1}{12}$
B. $\frac{4}{3}$
C. $\frac{1}{16}$
D. $\frac{1}{7}$

$$\frac{1}{3} \times \frac{1}{4} = \frac{1}{12}$$

2. $\frac{1}{2} \div 9 =$ _____

- A. $\frac{1}{11}$
B. $\frac{9}{2}$
C. $\frac{1}{18}$
D. $\frac{1}{20}$

$$\frac{1}{2} \times \frac{1}{9} = \frac{1}{18}$$

3. $\frac{1}{8} \div 3 =$ $\frac{1}{24}$

$$\frac{1}{8} \times \frac{1}{3} = \frac{1}{24}$$

4. $\frac{1}{4} \div 2 =$ $\frac{1}{8}$

$$\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$$

5. $\frac{1}{5} \div 5 =$ $\frac{1}{25}$

$$\frac{1}{5} \times \frac{1}{5} = \frac{1}{25}$$

6. $\frac{1}{3} \div 2 =$ $\frac{1}{6}$

$$\frac{1}{3} \times \frac{1}{2} = \frac{1}{6}$$

Q9 - PART - 1

M11L5

Represent Division of Unit Fractions by Non-Zero Whole Numbers

(1-11)

Page:147&148

7. Juanita shares the mixed nuts equally among herself and 3 friends. What fraction of a pound of nuts does each person receive?



Juanita + 3 friends = 4

$$\frac{1}{4} \div 4$$

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

$$= \frac{1}{16}$$

Each person will receive $\frac{1}{16}$ pound of nuts.

8. Raymond has $\frac{1}{3}$ gallon of water. He shares the water equally among his 3 hamsters. How much water will each hamster get?

$$\frac{1}{3} \div 3$$

$$= \frac{1}{3} \times \frac{1}{3}$$

$$= \frac{1}{9}$$

Each hamster will get $\frac{1}{9}$ gallon of water

Q9 - PART - 1

M11L5

Represent Division of Unit Fractions by Non-Zero Whole Numbers

(1-11)

Page:147&148

9. A baker divides $\frac{1}{2}$ pound of wheat flour equally for 3 loaves of bread. What fraction of a pound is in each loaf?

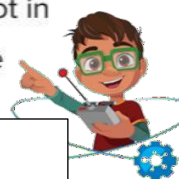
$$\frac{1}{2} \div 3$$

$$= \frac{1}{2} \times \frac{1}{3}$$

$$= \frac{1}{6}$$

There is $\frac{1}{6}$ pound is each loaf

10. **STEM Connection** Antonio is trying to determine the speed of his robot before his next competition. He measures that the robot moves $\frac{1}{2}$ foot in 5 seconds. How far does his robot move each second?



$$\frac{1}{2} \div 5$$

$$= \frac{1}{2} \times \frac{1}{5}$$

$$= \frac{1}{10}$$

His robot moves $\frac{1}{10}$ foot each second.

11. **Extend Your Thinking** How is dividing unit fractions by whole numbers similar to dividing whole numbers by unit fractions? How is it different?

They are similar because both involve breaking up a whole into smaller pieces. because we start with a dividend that is a unit fraction, the quotient is less than the dividend instead of greater.

Unit 12

Measurement and Data

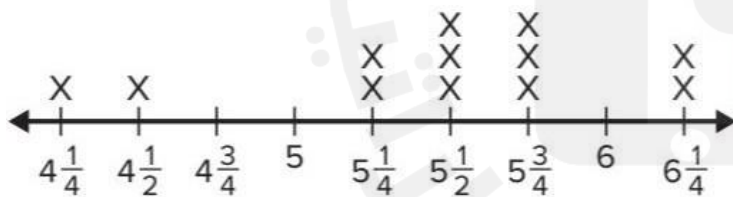
FRQ

	Lesson Name	Example/Exercise	Page
Q-3	U12L4 – Represent Measurement Data on a Line Plot	Exercise:- (1 - 8)	Page :- 181
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	U12L5 – Solve Problems Involving Measurement Data on Line Plots	Exercise:- (1 - 8)	Page :- 185
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Q3 - PART - 2

M12L4	Represent Measurement Data on a Line Plot	(1-8)	Page:181
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This line plot shows the lengths of various mice from nose to the tip of the tail. Use the line plot to answer the questions.



Mice Length (in inches)

1. How many mice are in the data set?

12 mice (we count all the crosses)

2. How long is the shortest mouse?

4 ¹/₄ in

3. How long is the longest mouse?

6 ¹/₄ in

4. Which measurement or measurements occurred the most often?

5 ¹/₂ in. and 5 ³/₄ in

5. Which measurement or measurements occur the least often?

4 ¹/₄ in. and 4 ¹/₂ in.

6. How many mice are longer than 5 inches?

10 mice

7. How many mice are shorter than 5 inches?

2 mice

8. What is the difference in inches between the longest and the shortest mouse?

6 ¹/₄ - 4 ¹/₄ = 2 in.

Q3 - PART - 2

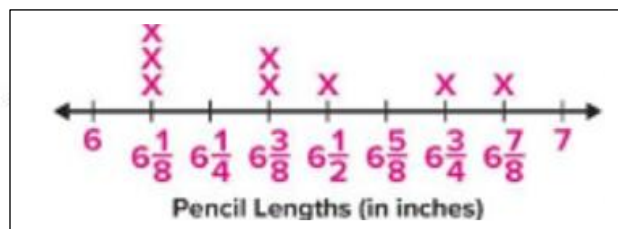
M12L4

Represent Measurement Data on a Line Plot

(9-13)

Page:182

9. Create a line plot to represent the data .



Pencil Lengths (in.)			
$6\frac{3}{4}$	$6\frac{1}{8}$	$6\frac{1}{2}$	$6\frac{1}{8}$
$6\frac{7}{8}$	$6\frac{3}{8}$	$6\frac{1}{8}$	$6\frac{3}{8}$

10. How did you know how to label the measurements on the line plot?

Some of the measurements are in 8ths, so I labelled each tick mark counting by 8ths.

11. How did you know how many Xs to place above each measurement?

I counted how many of each measurement there are in the table and placed that many X's.

13. **Extend Your Thinking** Another pencil was found. It has a length that is $1\frac{1}{2}$ inches shorter than the longest pencil in the table. What is the length of this new pencil?

$$\begin{aligned} 6\frac{7}{8} - 1\frac{1}{2} &= \frac{55}{8} - \frac{3}{2} \\ &= \frac{55}{8} - \frac{12}{8} \\ &= \frac{43}{8} \\ &= 5\frac{3}{8} \text{ in.} \end{aligned}$$

12. Are there any measurements with no Xs above them? Explain

There are no Xs above 6, $6\frac{1}{4}$, $6\frac{5}{8}$, or 7. There are no pencils of those lengths.

Q3 - PART - 2

M12L5

Solve Problems Involving Measurement Data on Line Plots

(1-8)

Page:185

The line plot shows the weights of various mice. Use the line plot to answer the questions.

1. What is the combined weight of the 4 lightest mice?

$$\begin{aligned} \frac{1}{4} \times 3 &= \frac{3}{4} \\ \frac{3}{4} + \frac{3}{8} &= \frac{6}{8} + \frac{3}{8} = \frac{9}{8} = 1\frac{1}{8} \text{ oz.} \end{aligned}$$

2. What is the combined weight of the mice that weigh $\frac{3}{4}$ ounces?

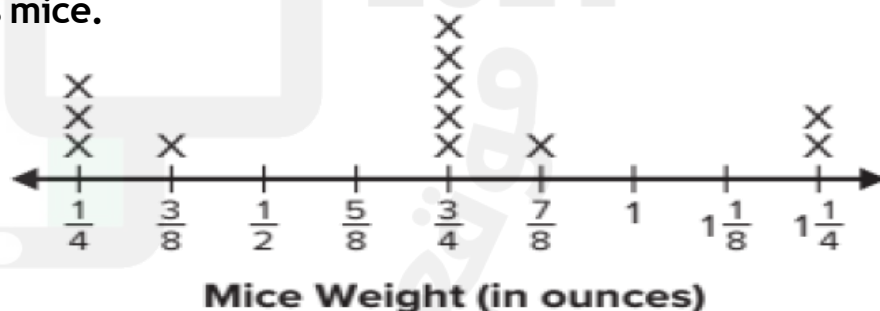
$$\frac{3}{4} \times 5 = \frac{15}{4} = 3\frac{3}{4} \text{ oz.}$$

3. What is the combined weight of all the mice?

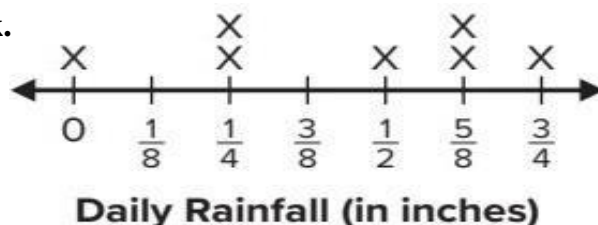
$$\begin{aligned} \frac{3}{4} + \frac{15}{4} + \frac{10}{4} &= \frac{28}{4} \\ \frac{3}{8} + \frac{7}{8} &= \frac{10}{8} \\ \frac{28}{4} + \frac{10}{8} &= \frac{56}{8} + \frac{10}{8} \\ &= \frac{66}{8} = 8\frac{2}{8} = 8\frac{1}{4} \text{ oz.} \end{aligned}$$

4. What is the difference in weight between the heaviest mouse and the lightest mouse?

$$1\frac{1}{4} - \frac{1}{4} = 1 \text{ oz.}$$



The line plot shows the amount of rain that fell each day in a week. Use the line plot to answer the questions.



5. What was the total amount of rainfall in inches during the week?

$$\begin{aligned} & \frac{2}{4} + \frac{3}{4} + \frac{1}{2} + \frac{10}{8} \\ &= \frac{5}{4} + \frac{1}{2} + \frac{10}{8} \\ &= \frac{10}{8} + \frac{4}{8} + \frac{10}{8} \\ &= \frac{24}{8} = 3 \text{ in. of rainfall} \end{aligned}$$

7. On the days it rained, what is the difference between the greatest and least amount of rainfall?

$$\frac{3}{4} - \frac{1}{4} = \frac{2}{4} = \frac{1}{2} \text{ in.}$$

6. How many days did it rain during the week?

6 days

8. If the same amount of rain falls the following week, what is the total amount of rainfall over two weeks?

$$3 \text{ in.} \times 2 = 6 \text{ in.}$$

The line plot shows how much water each player drank during a basketball game. Use the line plot to answer the questions.



10. What is the difference between the greatest amount of water drank and the least amount of water drank?

$$\begin{aligned} & 1 - \frac{1}{4} = \frac{3}{4} \text{ gal.} \end{aligned}$$

9. How many players drank water during the basketball game?

16 players

11. Error Analysis Tony wants to find the total amount of water players drank during the game.

$$\frac{1}{4} + \frac{3}{8} + \frac{1}{2} + \frac{5}{8} + \frac{3}{4} + \frac{7}{8} + 1 = 4\frac{3}{8} \text{ gallons}$$

Is Tony's work correct? Explain why or why not.

No, it is not correct. He did not multiply the number of gallons by the number of tick marks.

The correct amount is $9\frac{3}{4}$ gallons.

Unit 12

Measurement and Data

MCQ

	Lesson Name	Example/Exercise	Page
Q-10	U12L1 – Convert Customary Units	Exercise:- (1 - 8)	Page :- 169
		Exercise:- (9, 12)	Page :- 190
Q-11	U12L2 – Convert Metric Units	Exercise:- (1 - 10)	Page :- 173
		Exercise:- (11 - 14)	Page :- 174
Q-12	U12L3 – Solve Multi-Step Problems Involving Measurement Units	Exercise:- (1 - 6)	Page :- 177
		Exercise:- (7 - 11)	Page :- 178

Q10 - PART - 1

M12L1	Convert Customary Units	(1-8)	Page:169
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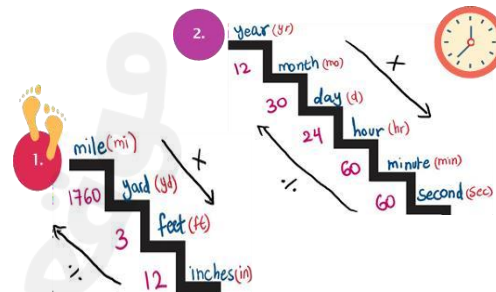
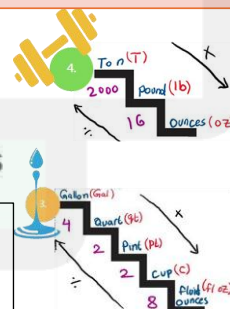
Which operation will you use for the conversion?
Explain your reasoning.

1. cups to fluid ounces

Operation used- multiplication
You multiply the number of cups by 8, because
1 cup=8 ounces

2. hours to days

Operation used: division
You divide because 1 day = 24 hours
example: 48 hours ÷ 24 = 2 days



Complete the conversion.

3. 36 in. = 3 ft

12 in = 1 ft

$$36 \div 12 = 3$$

4. 2 T = 4,000 lb

1 T = 2000 lb

$$2 \times 2,000 = 4,000$$

5. 16 pt = 2 gal

8 pt = 1 gal

$$16 \div 8 = 2$$

6. 3 yr = 36 mo

1 yr = 12 mo

$$3 \times 12 = 36$$

7. 48 oz = 3 lb

16 oz = 1 lb

$$48 \div 16 = 3$$

8. 4 hr = 240 min

1 hr = 60 min

$$4 \times 60 = 240$$

Q10 - PART - 1

M12L1	Convert Customary Units	(9-12)	Page:190
<p>9. What operation should you use to convert seconds to minutes? Explain your answer. (Lesson 12-1)</p> <p>Division; you are finding fewer of a greater unit. You will divide the number of seconds by 60.</p>		<p>10. How many meters are equal to 3 kilometers? (Lesson 12-2)</p> <p>1 kilometer = 1,000 meters SO 3 kilometers = 3,000 meters</p>	
<p>11. Jolanna has $1\frac{1}{2}$ yards of decorative tape. She uses 1-inch pieces for her scrapbook. How many 1-inch pieces of decorative tape does she have? (Lesson 12-3)</p> <p>A. 24 pieces B. 36 pieces C. 54 pieces D. 90 pieces</p> <div> <p>1 yard = 36 inches $1\frac{1}{2} \times 36$ $= \frac{3}{2} \times 36$ $= \frac{108}{2}$ $= 54$ pieces</p> </div>		<p>12. It is recommended that a person sleep 8 hours every night. How many minutes does this person sleep in a year? (Lesson 12-1)</p> <p>A. $48\frac{2}{3}$ minutes B. 2,920 minutes C. 175,200 minutes D. 10,512,000 minutes</p> <div> <p>365 days = 1 year $8 \times 365 = 2,920$ hours 1 hour = 60min $2,920 \times 60 = 175,200$</p> </div>	

M12L2	Convert Metric Units	(1-10)	Page 173
<p>Which operation should you use for the conversion? Explain your answer.</p> <p>1. milligrams to grams 2. meters to centimeters</p> <div> <p>Division - finding fewer of a larger unit.</p> <p>Multiplication- Finding more of smaller unit.</p> </div>			
<p>3. 3 L = <u>3,000</u> mL</p> <div> <p>1 liter = 1000ml $3 \times 1000 = 3000$</p> </div>			
<p>4. 100 mL = <u>0.1</u> L</p> <div> <p>1 liter = 1000ml $100 \text{ml} \div 1,000 = 0.1 \text{liters}$</p> </div>			
<p>5. 500 kg = <u>500,000</u> g</p> <div> <p>1kg = 1000g $500 \times 1000 = 500,000$</p> </div>			
<p>6. 6 km = <u>6,000</u> m</p> <div> <p>1km = 1,000m $6 \text{km} \times 1,000 = 6,000$</p> </div>			
<p>7. 70 mg = <u>0.07</u> g</p> <div> <p>1gram = 1,000mg $70 \div 1,000 = 0.07$</p> </div>			
<p>8. 800 kL = <u>800,000</u> L</p> <div> <p>1kl = 1,000L $800 \times 1,000 = 800,000$</p> </div>			

Q11 - PART - 1

M12L2

Convert Customary Units

(1-10)

Page:173

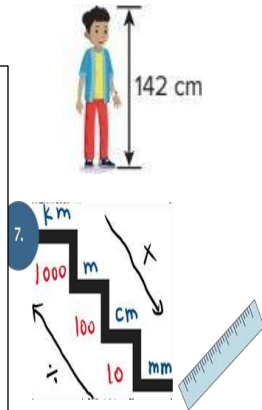
9. Andrew's height is given in centimeters. What is Andrew's height in meters?

1 meter = 100 centimeters

To convert meters to centimeters you multiply by 100.

To convert centimeters to meters you divide by 100.

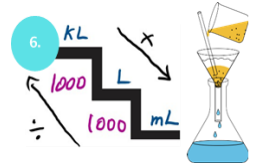
$$142 \div 100 = 1.42\text{m}$$



10. **Error Analysis** A cooler contains 50 liters of water. Emily calculated to determine how many milliliters of water are in the cooler. Check Emily's work. Did she make any mistakes? If so, how could she correct her work?

$$50 \times 100 = 5,000$$

There are 5,000 milliliters of water.



Yes, she did make a mistake. She should have multiplied 50 by 1000, but she multiplied 50 by 100.
 $1\text{L} = 1,000\text{ml}$
 $50 \times 1,000 = 50,000\text{ml}$
 Her answer should have been 50,000ml

Q11 - PART - 1

M12L2

Convert Customary Units

(11-14)

Page: 174

11. The maximum mass an elevator can hold is 450 kilograms. What is the maximum mass in grams?

1kg = 1,000 grams

$$450 \times 1,000 = 450,000\text{g}$$

12. How many liters of water are in the pool?

1kL = 1,000L

$$375 \times 1,000 = 375,000 \text{ liters}$$



13. Ryan has a sheet of paper that is 0.75 meter long. What is the length in centimeters?

1 meter = 100 centimeters

$$0.75 \times 100 = 75 \text{ cm}$$

14. Ada's backpack has a mass of 9,080 grams. What is the mass in kilograms?


1kg = 1,000 grams

$$9,080 \div 1000 = 9.08\text{kg}$$

Q12 - PART - 1

M12L3	Solve Multi-Step Problems Involving Measurement Units	(1-6)	Page:177
<p>1. Adrian has a roll of wrapping paper that is 3 yards long. He uses $\frac{1}{3}$ of the wrapping paper to wrap a present. What is the length, in feet, of the paper left on the roll?</p> <p>A. 1 ft B. 3 ft C. 6 ft</p> <p>$\frac{1}{3} \times 3 = \frac{3}{3} = 1$ $3 - 1 = 2$ yards $1 \text{ yard} = 3 \text{ feet}$ $2 \text{ yards} \times 3 = 6 \text{ feet}$</p>	<p>2. Ruby's backpack has a mass of 4 kilograms. She removes a book that has a mass of 120 grams. What is the mass of Ruby's backpack after she removes the book?</p> <p>A. 2.8 kg B. 3.88 kg C. 38.8 kg</p> <p>$1 \text{ kg} = 1,000 \text{ g}$ $4 \text{ kg} = 4,000 \text{ g}$ $4,000 - 120 = 3,880 \text{ g}$ Therefore $3,880 \div 1,000 = 3.88 \text{ kg}$</p>	<p>3. Amy's family has 2 gallons of milk in the refrigerator. At dinner, her family drinks $\frac{3}{8}$ of the milk in the refrigerator. How many cups of milk are left?</p> <p>1 gallon is 16 cups $2 \text{ gal.} \times 16 = 32 \text{ cups}$ $\frac{3}{8} \times 32 = \frac{96}{8} = 12 \text{ cups}$ Therefore: $32 - 12 = 20 \text{ cups}$ 20 cups of milk are left.</p>	

Q12 - PART - 1

M12L3	Solve Multi-Step Problems Involving Measurement Units	(1-6)	Page 177
<p>4. A track at the school is 400 meters long. Jackson walks around the track $3\frac{1}{2}$ times. How many kilometers did Jackson walk?</p> <p>$400 \times 3\frac{1}{2} = 400 \times \frac{7}{2} = \frac{2800}{2} = 1,400 \text{ meters}$ $1 \text{ km} = 1,000 \text{ m}$ $1,400 \text{ m} \div 1,000 = 1.4 \text{ km}$ (Jackson walked 1.4 km)</p>	<p>5. STEM Connection Finn knows that a cubic yard of concrete weighs about 4,050 pounds. A cement truck can hold 10 cubic yards of concrete. How many tons of concrete can the truck hold?</p> <p>$4,050 \times 10 = 40,500 \text{ pounds}$ $1 \text{ ton} = 2,000 \text{ pounds}$ $40,500 \div 2,000 = 20.25 \text{ tons}$</p> 		
<p>6. Robin is selling lemonade. She makes 3 liters of lemonade and sells glasses of 250 milliliters of lemonade each. In the first hour, she sells 6 glasses of lemonade. How many liters does she have left?</p> <p>$250 \text{ mL} \times 6 = 1,500 \text{ mL}$ $1 \text{ L} = 1,000 \text{ mL}$ Therefore: $3 \text{ L} = 3,000 \text{ mL}$ $3,000 - 1,500 = 1,500 \text{ mL}$ $1,500 \text{ mL} \div 1,000 = 1.5 \text{ L}$ (She has 1.5 liters left)</p>			

Q12 - PART - 1

M12L3

Solve Multi-Step Problems Involving Measurement Units

(7-11)

Page:178

7. Brian is walking to his friend's house that is 2.6 kilometers away. He stops when he is $\frac{7}{8}$ of the way there. How many meters does he still have to walk?

$$\begin{aligned} 1\text{km} &= 1,000\text{ m} \\ 2.6\text{km} &= 2.6 \times 1,000 = 2,600\text{m} \\ \frac{7}{8} \times 2,600 &= \frac{18,200}{8} = 2,275\text{m} \\ 2,600 - 2,275 &= 325\text{ m} \end{aligned}$$

8. Nell is aiming to drink the amount of water shown per day. By 3 p.m., she is $\frac{3}{4}$ of the way to her goal. How many more fluid ounces does she need to drink to reach her goal?

$$\begin{aligned} 1\text{ cup} &= 8\text{ fluid ounces; so} \\ 8\text{ cups} \times 8\text{ ounces} &= 64\text{ fluid ounces total per day.} \\ \text{By 3pm, she is } \frac{3}{4} \text{ of the way to her goal:} \\ \frac{3}{4} \times 64 &= 48\text{ fluid ounces already consumed.} \\ \text{So, she still needs to drink:} \\ 64 - 48 &= 16\text{ fluid ounces.} \\ \text{Neil needs to drink 16 fluid ounces to reach her goal.} \end{aligned}$$



8 cups per day

9. Tyler wants to send his cousin 5 books that are each 1,500 grams. He has a box that can hold up to 6 kilograms. Will Tyler be able to use the box he has? Explain.

$$\begin{aligned} 5 \times 1,500\text{g} &= 7,500\text{g} \\ 1\text{kg} &= 1,000\text{g} \\ \text{SO, } 7,500\text{ g} &= 7.5\text{ kg} \\ \text{He will need a bigger box because the total} \\ \text{mass of the books is 7.5 kilograms.} \end{aligned}$$

Q12 - PART - 1

M12L3

Solve Multi-Step Problems Involving Measurement Units

(7-11)

Page:178

10. Gina is growing a houseplant. When she measures it at the beginning of the month, it is 3 feet tall. When she measures it at the end of the month, it is $1\frac{1}{4}$ the size it was at the beginning of the month. How many inches did the houseplant grow?

$$\begin{aligned} 1\text{ foot} &= 12\text{ inches} \\ 3\text{ feet} \times 12 &= 36\text{ inches} \\ 1\frac{1}{4} \times 36 &= \frac{5}{4} \times 36 = \frac{180}{4} = 45 \\ 45 - 36 &= 9 \\ \text{The houseplant grew 9 inches.} \end{aligned}$$

11. **Extend Your Thinking** Christa has 3 gallons of water. Jaylen has 36 pints of water. Who has more water? Explain your reasoning.

$$\begin{aligned} \text{Jaylen has more; 3 gallons is the same as 24 pints, and } 36 > 24 \\ 1\text{ gallon} &= 8\text{ pints} \\ \text{Christa} - 3\text{ gal.} \times 8 &= 24\text{ pints} \\ \text{Jaylen has 36 pints} \end{aligned}$$

Unit 13

Geometry

FRQ

	Lesson Name	Example/Exercise	Page
Q-3	U13L2 – Plot Ordered Pairs on the Coordinate Plane	Exercise:- (1 - 8)	Page :- 203
		Exercise:- (9- 13)	Page :- 204

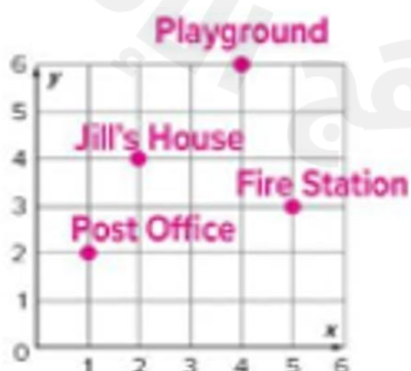
Q3 - PART - 2

M13L2	Plot Ordered Pairs on the Coordinate Plane	(1-8)	Page:203
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Plot and label the point for each place shown in the table

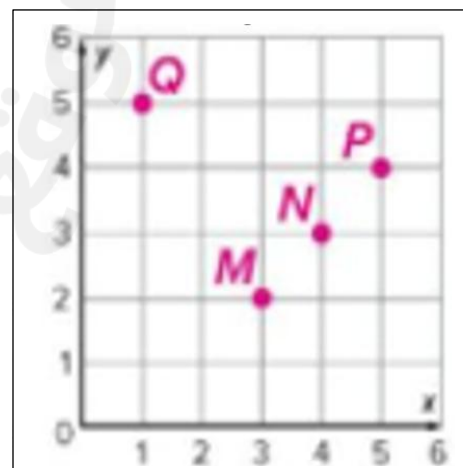
Place	Ordered Pair
Playground	(4, 6)
Post Office	(1, 2)
Fire Station	(5, 3)
Jill's House	(2, 4)

1. Playground
2. Post Office
3. Fire Station
4. Jill's House



Plot and label the point for each ordered pair.

5. $M(3, 2)$
6. $N(4, 3)$
7. $P(5, 4)$
8. $Q(1, 5)$



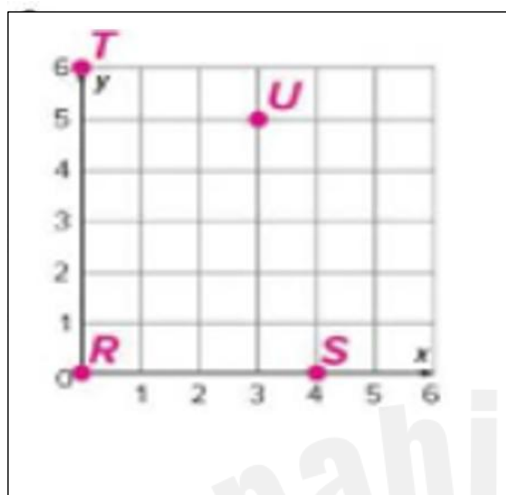
Plot and label the point for each ordered pair.

9. $R(0, 0)$

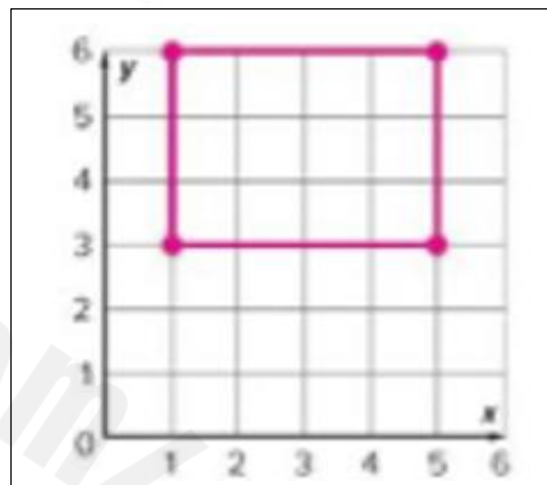
10. $S(4, 0)$

11. $T(0, 6)$

12. $U(3, 5)$



13. **Extend Your Thinking** Plot the points $(1, 3)$, $(1, 6)$, $(5, 6)$, and $(5, 3)$. Draw a line to connect the points in the order in which you plotted them. What is the length and width of the shape?



Unit 13

Geometry

MCQ

	Lesson Name	Example/Exercise	Page
Q-13	U13L1 – Understand the Coordinate Plane	Exercise:- (1 - 5)	Page :- 199
		Exercise:- (10, 12)	Page :- 224
Q-14	U13L3 – Represent Problems on a Coordinate Plane	Exercise:- (1 - 6)	Page :- 207
		Exercise:- (7 - 12)	Page :- 208
Q-15	U13L4 – Classify Triangles by Properties	Exercise:- (1 - 8)	Page :- 211
		Exercise:- (9 - 13)	Page :- 212
Q-16	U13L6 – Classify Quadrilaterals by Properties	Exercise:- (1 - 8)	Page :- 221
		Exercise:- (9 - 13)	Page :- 222

Use the coordinate plane to answer exercises 1–7.

1. What ordered pair describes point W?

4,4

2. What ordered pair describes point X?

2,6

3. What ordered pair describes point Y?

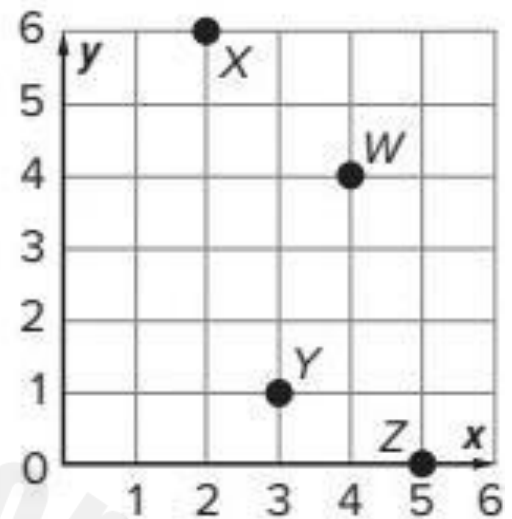
3,1

4. What ordered pair describes point Z?

5,0

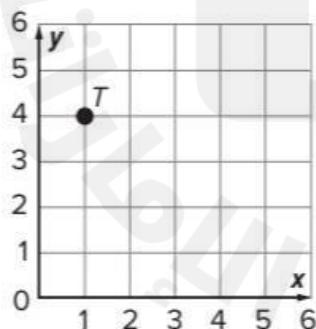
5. What ordered pair describes the origin?

0,0



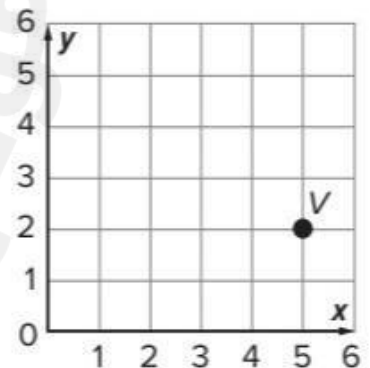
10. What ordered pair represents point T? (Lesson 13-1)

1,4



11. What ordered pair represents point V? (Lesson 13-1)

5,2



12. What ordered pair represents the origin? (Lesson 13-1)

0,0

Q14 - PART - 1

M13L3

Represent Problems on a Coordinate Plane

(1-6)

Page:207

1. The table shows the time it took for a fifth-grade student to go down the slide at a park and their height from the ground while going down the slide.

Write the time and corresponding heights as ordered pairs.

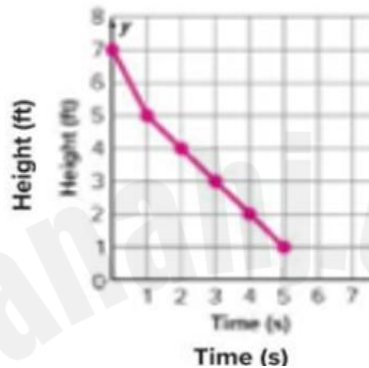
(0,7); (1,5); (2,4); (3,3); (4,2); (5,1)

2. Plot and connect the points on a coordinate plane.

3. How tall is the slide?

7 feet tall

Time (seconds)	Height (feet)
0	7
1	5
2	4
3	3
4	2
5	1



4. How long does it take for the student to go down the slide?

5 seconds

5. What happens between 0 seconds and 1 second?

The student goes down 2 feet

6. Where is the student after 5 seconds?

1 foot off the ground

Q14 - PART - 1

M13L3

Represent Problems on a Coordinate Plane

(7-12)

Page:208

7. **STEM Connection** Poppy measures the height of a plant over several weeks and records it in the table. The plant is 14 inches tall before she begins recording. Write the weeks and corresponding heights as ordered pairs

(1,16); (2,20); (3,22); (4,22); (5,28); (6,32)

8. Plot and connect the points on the coordinate plane.

9. How much does the plant grow between Weeks 1 and 2?

4 inches

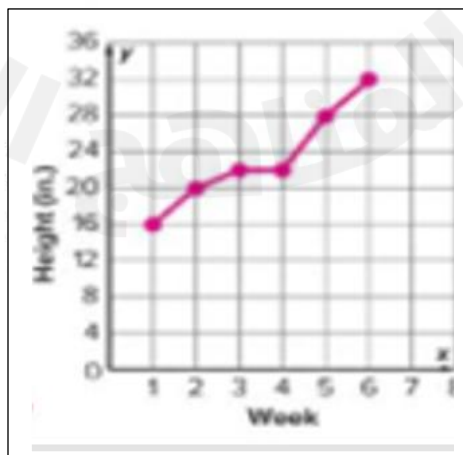
10. What happens between Weeks 3 and 4?

The plant remains the same height

11. How much does the plant grow between before Poppy begins recording and Week 6?

18 inches

Week	Height (inches)
1	16
2	20
3	22
4	22
5	28
6	32



12. **Extend Your Thinking:** What are some real-world situations you could interpret from points represented on a coordinate plane?

Growth of students' height over time, distance a car travels on a road trip per day

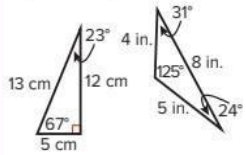
Learn

What are some ways you can classify triangles?

You can sort the triangles into **categories** based on their **properties**.

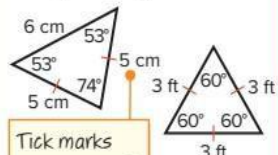
Scalene triangles

have no sides of equal length.



Isosceles triangles

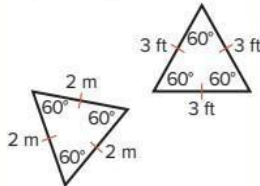
have at least two sides of equal length.



Tick marks show sides of equal length.

Equilateral triangles

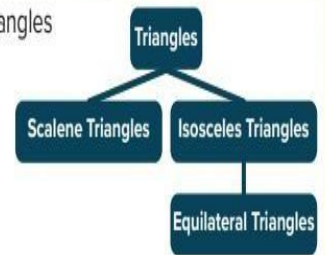
have 3 sides of equal length.



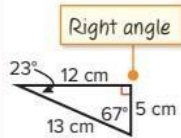
You can represent the categories of triangles as a **hierarchy** with **subcategories**.

Math is... Explaining

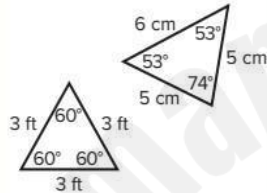
Why is an equilateral triangle also an isosceles triangle?



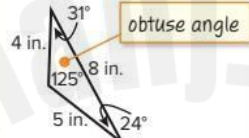
Right triangles have one right angle.



Acute triangles have 3 acute angles.

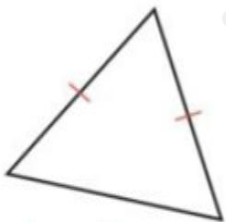


Obtuse triangles have one obtuse angle.



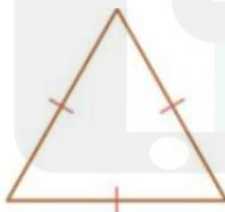
Classify each triangle by using their properties.

1.



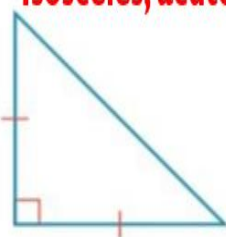
Isosceles; acute

2.



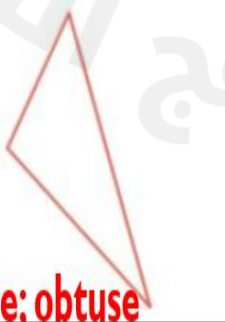
Equilateral or Isosceles; acute

3.



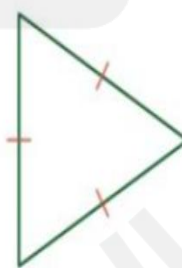
Isosceles; right

4.



Scalene; obtuse

5.



Equilateral; acute

6.



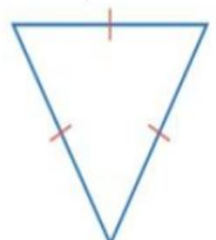
Isosceles; acute

7.



Scalene; obtuse

8.



Equilateral or isosceles; acute

9. What is a property of all triangles?

They are closed polygons with 3 sides

11. What is a property of isosceles triangles?

They have at least 2 sides of the same length

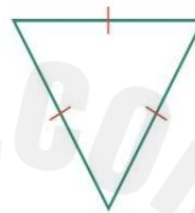
10. What is a property of scalene triangles?

They have 3 sides of 3 different lengths

12. What is a property of equilateral triangles?

They have 3 sides of the same length

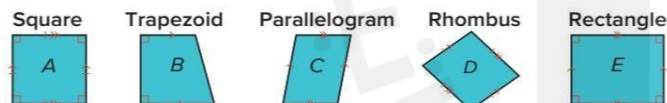
13. **Error Analysis** Tina categorizes this triangle as an equilateral triangle and says it cannot be categorized as an isosceles triangle. How can you help Tina correct her thinking?



An equilateral triangle is a subcategory of an isosceles triangle, so it goes in both the category and subcategory.

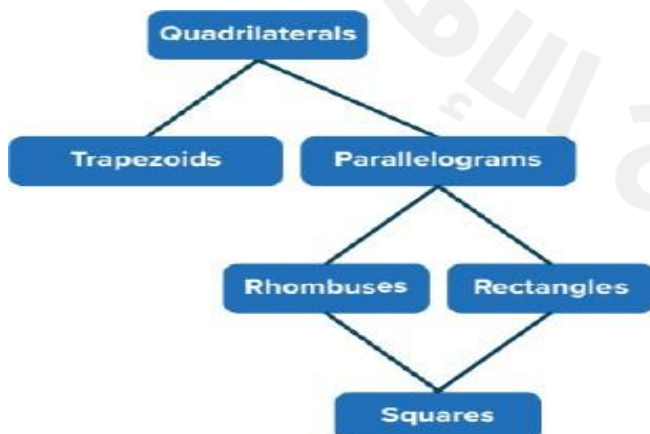
Learn

How can you represent the different categories and subcategories of quadrilaterals?

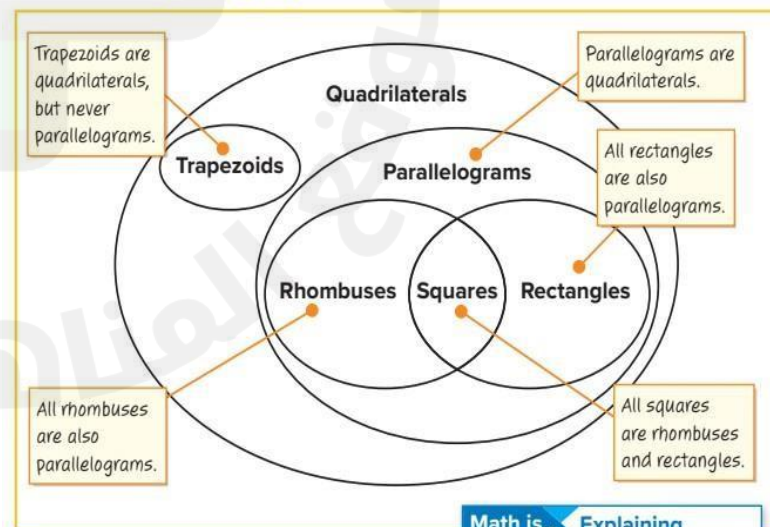


Quadrilaterals can be classified into categories and subcategories based on their shared properties.

You can use a **Venn diagram** to show a hierarchy.



You can use a **Venn diagram** to show a hierarchy.



Work Together

Are the following statements *always true*,

Math is... Explaining

How does the Venn diagram show the relationship among quadrilaterals?

Q16 - PART - 1

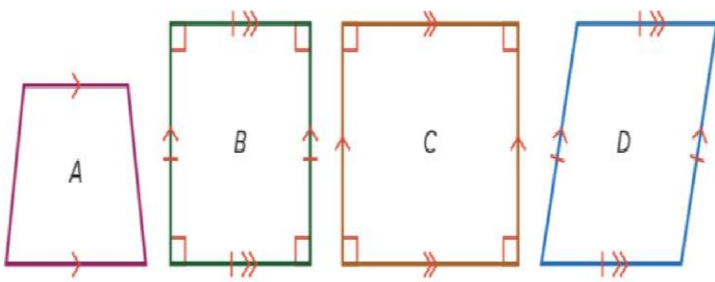
M13L6

Classify Quadrilaterals by Properties

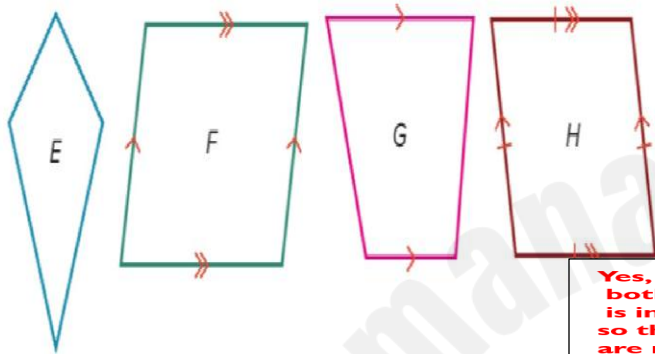
(1-8)

Page:221

"Use the figures for Exercises 1-8. Identify the figures that could be classified into each subcategory



1. quadrilaterals **A, B, C, D, E, F, G, H**
2. trapezoids **A, G**
3. parallelograms **B, C, D, F, H**
4. rectangles **B, C**
5. rhombuses **B, D, H**
6. squares **B**



7. How did you know how to classify each shape? Explain.

I classified the shapes based on number of parallel sides, number of sides of equal length, and number of right angles.

8. Did you classify any shapes into more than one category? If so, explain why.

Yes, all parallelograms are quadrilaterals so those shapes are in both categories; all rectangles are parallelograms so Shape C is in both categories; all rhombuses are parallelograms so those shapes are in both categories; and all squares are rhombuses so Shape B is in both categories.

Q16 - PART - 1

M13L6

Classify Quadrilaterals by Properties

(9 - 13)

Page:222

9. **STEM Connection** Hanna is helping cut some sheets of metal. She needs to cut them so that they have 4 sides with two pairs of parallel sides. Some need to have 4 right angles and some do not. How can she classify the sheets of metal?

The sheets with 4 right angles can be classified as rectangles and the sheets without right angles can be classified as parallelograms.



10. Which quadrilaterals always have 4 right angles?

Squares and rectangles

11. Which quadrilaterals always have exactly 1 pair of parallel sides?

trapezoids

12. Which quadrilaterals always have 4 sides of equal length?

Rhombuses and squares

13. **Extend Your Thinking** Why can a rectangle also be called a parallelogram?

A rectangle has all the properties of a parallelogram

Unit 14

Algebraic Thinking

FRQ

	Lesson Name	Example/Exercise	Page
Q-4	U14L5 – Relate Numerical Patterns	Learn + Work Together	Page :- 250
		Exercise:- (1-6)	Page :- 252
		Exercise:- (7-11)	Page :- 252

Q5 - PART - 1

M14L5	Relate Numerical Patterns	Learn + Work Together	Page:250
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Learn

Pattern A starts at 0 and adds 1 to each term.

Pattern B starts at 0 and adds 5 to each term.

How can you determine a relationship between corresponding terms of these numerical patterns?

You can use a table to identify a relationship between the patterns.

Pattern A + 1	Pattern B + 5
0	0
1	5
2	10
3	15
4	20

Each term in Pattern B is 5 times as much as its corresponding term in Pattern A. You can use this relationship to determine unknown terms.

Math is... Structure

How are the terms in Pattern A related to their corresponding terms in Pattern B?

If 10 is a term in Pattern A, what is its corresponding term in Pattern B?

$$10 \times 5 = t$$

$$t = 50$$

If 70 is a term in Pattern B, what is its corresponding term in Pattern A?

$$c \times 5 = 70$$

$$c = 14$$

You can organize numerical patterns in a table to help you identify and describe relationships between corresponding terms.

Work Together

How can you determine a relationship between corresponding terms of these two numerical patterns?

Pattern A starts at 0 and adds 3 to each term.

Pattern B starts at 0 and adds 6 to each term.

The terms in Pattern B are 2 times as much as the terms in Pattern A

Describe a relationship between corresponding terms in Patterns A and B.

1. Pattern A starts at 0 and adds 4 to each term.
Pattern B starts at 0 and adds 2 to each term.

The term in Pattern A are 2 times as much as the corresponding terms in Pattern B.

3. Pattern A starts at 0 and adds 20 to each term.
Pattern B starts at 0 and adds 5 to each term.

The terms in Pattern A are 4 times as much as the terms in Pattern B.

2. Pattern A starts at 0 and adds 3 to each term.
Pattern B starts at 0 and adds 9 to each term.

The terms in Pattern B are 3 times as much as the corresponding terms in Pattern A.

Use the table to answer Exercises 4–6.

4. Fill in the unknown terms in the table.
5. What is a relationship between the corresponding terms in Patterns A and B?

Multiply the term in pattern A by 4 and the product is the term in Pattern B.

6. If a term in Pattern A is 20, what will be its corresponding term in Pattern B?

$$20 \times 4 = 80$$

Pattern A + 2	Pattern B + 8
0	0
2	8
4	16
6	24
8	32

Q5 - PART - 1

M14L5

Relate Numerical Patterns

(7 - 11)

Page:252

7. Pattern A starts at 0 and adds 1 to each term. Pattern B starts at 0 and adds 6 to each term. If 5 is a term in Pattern A, what is its corresponding term in Pattern B?

30

A	0	1	2	3	4	5	6	7	8	9	10
B	0	6	12	18	24	30	36	42	48	54	60

9. Pattern A starts at 0 and adds 3 to each term. Pattern B starts at 0 and adds 12 to each term. If 72 is a term in Pattern B, what is its corresponding term in Pattern A?

18

A	0	3	6	9	12	15	18	21	24	27	30
B	0	12	24	36	48	60	72	84	96	108	120

Q5 - PART - 1

M14L5

Relate Numerical Patterns

(7 - 11)

Page:252

8. Pattern A starts at 0 and adds 4 to each term. Pattern B starts at 0 and adds 8 to each term. If 24 is a term in Pattern A, what is its corresponding term in Pattern B?

48

A	0	4	8	12	16	20	24	28	32	36	40
B	0	8	16	24	32	40	48	56	64	72	80

10. **STEM Connection** Saffron is baking bread. She wrote these numerical patterns to record the amount of water and flour needed.

Water (in cups): 3, 4, 5, 6, ...

Flour (in cups): 6, 8, 10, 12, ...

How many cups of water is needed when using 48 cups of flour?

Flour divided by water: $48 \div 2 = 24$
24 cups of water is needed



11. **Extend Your Thinking** A relationship between terms is that a term in Pattern A is $\frac{5}{4}$ times as much as its corresponding term in Pattern B. What could be the rules for each numerical pattern?

Pattern A Rule: Multiply each Pattern B term by $\frac{5}{4}$
Pattern A:
 $4 \times \frac{5}{4} = 5$
 $8 \times \frac{5}{4} = 10$
 $12 \times \frac{5}{4} = 15$
 $16 \times \frac{5}{4} = 20$
So, Pattern A: 5, 10, 15, 20, ...

Pattern B Rule: Start at 4, add 4
Pattern A Rule: Multiply each Pattern B term by $\frac{5}{4}$
This shows how the relationship works between the patterns.

Unit 14

Algebraic Thinking

MCQ			
	Lesson Name	Example/Exercise	Page
Q-17	U14L1 – Write Numerical Expressions	Learn + Work Together	Page :- 232
		Exercise:- (1, 9)	Page :- 233
Q-18	U14L2 –Interpret Numerical Expressions	Exercise:- (1 – 8)	Page :- 237
		Exercise:- (9 – 15)	Page :- 238
Q-19	U14L3 – Evaluate Numerical Expressions	Exercise:- (1 - 10)	Page :- 241
		Exercise:- (11 - 14)	Page :- 242
		Exercise:- (11, 16 , 17)	Page :- 258
Q-20	U14L4 – Numerical Patterns	Exercise:- (1 - 8)	Page :- 247
		Exercise:- (9 - 12)	Page :- 248
		Exercise:- (25)	259

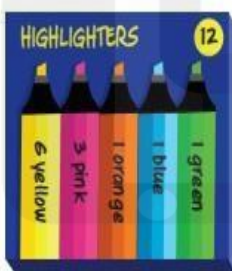
Q17 - PART - 1

M14L1	Write Numerical Expressions	Learn + Work Together	Page:232
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Learn

The school secretary will order 9 boxes of highlighters.

How can you show the number of yellow and pink highlighters that will be in the order?



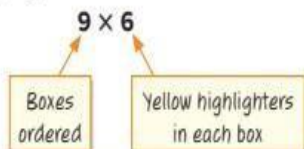
This numerical expression shows the number of yellow and pink highlighters that will be in the order.

$$(9 \times 6) + (9 \times 3)$$

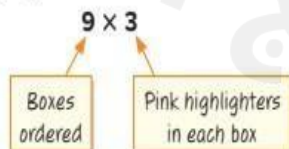
Math is... Precision

How is an equation similar to an expression? How is it different?

The **numerical expression** 9×6 shows the number of yellow highlighters that will be in the order.



The numerical expression 9×3 shows the number of pink highlighters that will be in the order.



You can use numbers—operation symbols, such as +, −, ×, and ÷—and grouping symbols, such as parentheses, to write numerical expressions.

Work Together

What numerical expressions represent the description? Add 35 and 72. Then multiply by 12.

$$(35 + 72) \times 12 \text{ OR } 12 \times (35 + 72)$$

What numerical expression represents the description?

1. Divide 40 by 5. Then, subtract 2.

$$(40 \div 5) - 2$$

2. Multiply 4 and 8. Then, add 7.

$$(4 \times 8) + 7$$

3. Add $2\frac{1}{2}$ and $4\frac{2}{3}$. Then, subtract $\frac{1}{8}$.

$$(2\frac{1}{2} + 4\frac{2}{3}) - \frac{1}{8}$$

4. Add 4.8 and 5.6. Then, subtract the sum from 16.9.

$$16.9 - (4.8 + 5.6)$$

5. Subtract $4\frac{1}{4}$ from $10\frac{2}{5}$. Then, divide by 3.

$$(10\frac{2}{5} - 4\frac{1}{4}) \div 3$$

6. Subtract 8 from 32. Then, divide 48 by the difference.

$$48 \div (32 - 8)$$

What numerical expression represents the description?

7. Add 6.7 and 8.25. Then, multiply by 11.2.

$$(6.7 + 8.25) \times 11.2$$

8. Divide 24 by 6. Multiply 5 and 7. Then, add the quotient and the product.

$$(24 \div 6) + (5 \times 7)$$

9. **Error Analysis** Christine is planting 48 marigolds. She will plant 12 of the flowers in pots and the rest in rows of 4 plants each. She wrote this numerical expression to represent the number of plants in each row.

$$48 - (12 \div 4)$$

How do you respond to Christine?

The grouping symbols should be around $48 - 12$ because that is the difference you need to find before dividing by 4.

Q18 - PART - 1

M14L2	Interpret Numerical Expressions	(1-8)	Page:237
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Write the description for each numerical expression.

1. $(9 \times 18) - 5$

Subtract 5 from the product of 9 and 18

2. $9 \times (18 - 5)$

Subtract 5 from 18, then multiply the difference by 9

3. $80 \div (20 \times 4)$

Divide 80 by the product of 20 and 4

4. $(80 \div 20) \times 4$

Multiply the quotient of 80 divided by 20 by 4.

Compare the expressions using $>$, $<$, or $=$. Explain your reasoning.

5. $120 \div 12 > (120 \div 12) - 9$

The quotient of $120 \div 12$ is reduced by 9 in the second expression.

6. $50.5 \times 7.2 > (50.5 - 4.8) \times 7.2$

The 50.5 is reduced by 4.8 in the second expression.

7. $5\frac{3}{4} \times (2\frac{1}{8} + 3\frac{1}{2}) = (5\frac{3}{4} \times 2\frac{1}{8}) + (5\frac{3}{4} \times 3\frac{1}{2})$

Distributive property $5\frac{3}{4}$ is multiplied by both addends

8. A store ordered 4,500 T-shirts and 4,500 sunglasses. Without doing any calculations, which costs more? Explain your reasoning.



Sunglasses; because $22 > 15$, the product of 4,500 and 22 is greater than the product of 4,500 and 15.

Q18 - PART - 1

M14L2	Interpret Numerical Expressions	(9-15)	Page:238
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Determine whether Expression A is 5 times as much as Expression B. Place a checkmark in the Yes or No column.

	Expression A	Expression B	Yes	No
9.	$5 \times (1\frac{1}{4} \times 4\frac{5}{8})$	$1\frac{1}{4} \times 4\frac{5}{8}$	✓	
10.	$(5 \times 4.39) + (5 \times 8.99)$	$4.39 + 8.99$	✓	
11.	$(65 \times 5) \times 2$	$(65 \times 2) \times 5$		✓
12.	$(3,492 - 2,482) \times 5$	$3,492 - 2,482$	✓	
13.	$(895 + 345) \div 5$	$895 + 345$		✓
14.	$6.71 \times (3.28 \times 5.16)$	6.71×3.28		✓

15. **Extend Your Thinking** Write a word problem that could be represented by each numerical expression:

$8 \times (4 + 2)$

$(8 \times 4) + 2$

Explain why the way the expressions are grouped impacts what happens in the word problem.

Expression 1: $8 \times (4 + 2)$

Word Problem: A teacher gives each of her 8 students 4 pencils and 2 pens. How many items did she give out in total?

Expression 2: $(8 \times 4) + 2$

Word Problem: A teacher gives each of her 8 students 4 pencils. Then she gives 2 extra pencils to one student. How many pencils did she give out?

Explanation:

In the first problem, you add first $(4 + 2)$, then multiply by 8 — this means each student gets 6 items.

In the second problem, you multiply first (8×4) , then add 2 — this means only 2 items are added after giving 8 students 4 items each. So, how the numbers are grouped changes the meaning and the total.

Q19 - PART - 1

M14L3	Evaluate Numerical Expressions	(1-10)	Page:241
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Which operation will you perform first to evaluate the expression?
Explain your reasoning.

1. $25 - 5 \times (4 - 3)$

2. $37 + 8 \div 2 - 5$

subtraction

division

3. $\frac{3}{4} \times (2\frac{1}{2} + 6\frac{1}{4})$

4. $100 \times 4 + 6 - 10$

addition

multiplication

What is the solution? Show your work.

5. $3 + 7 \times 2 = 17$

6. $(3 + 7) \times 2 = 20$

$3 + (7 \times 2) = 3 + 14 = 17$

$10 \times 2 = 20$

7. $56 \div 8 - 3 + 2 \times 5 = 14$

$(56 \div 8) - 3 + (2 \times 5) = 7 - 3 + 10$
 $= 4 + 10 = 14$

What is the solution? Show your work.

8. $56 \div (8 - 3 + 2) \times 5 = 40$

$56 \div 7 \times 5$
 $= 8 \times 5$
 $= 40$

9. $2\frac{3}{8} + 1\frac{1}{4} \times 6\frac{3}{4} - \frac{1}{2} = 10^5/16$

$2^3/8 + (5/4 \times 27/4) - 1/2$
 $= 19/8 + 135/16 - 1/2$
 $= 38/16 + 135/16 - 8/16$
 $= 173/16 - 8/16$
 $= 165/16$
 $= 10^5/16$

10. $5.8 \times (6.75 + 3.25) \div 2 = 29$

$5.8 \times 10 \div 2$
 $= 58 \div 2$
 $= 29$

Q19 - PART - 1

M14L3	Evaluate Numerical Expressions	(11-14)	Page:242
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11. Which numerical expression is equal to 8?

A. $24 \div 6 \times 4 + 7$

B. $(24 \div 6) \times 4 + 7$

C. $24 \div (6 \times 4) + 7$

D. $24 \div 6 \times (4 + 7)$

We calculate the amount between the

Parentheses first: $24 \div 24 \div 7 = 1 \div 7 = 8$

12. Which numerical expression is equal to 1?

A. $96 \div 12 \times 4 \div 2$

B. $96 \div (12 \times 4) \div 2$

C. $96 \div (12 \times 4 \div 2)$

D. $96 \div 12 \times (4 \div 2)$

$96 \div 48 \div 2$
 $= 2 \div 2$
 $= 1$

13. **Error Analysis** Brenna evaluated this expression. How can you help Brenna correct her thinking?

$36 \div 2 \times 9 \div 3 = \frac{2}{3}$

Brenna multiplied first when she should have performed division and multiplication from left to right first; the answer is 54

14. **Extend Your Thinking** Evaluate the expression. Then, explain how the use of grouping symbols could change the expression and how you evaluate it.

$6 \div 2 + 9 \div 3$

As written, the expression is equal to 6. Grouping symbols would change it only if there were parentheses around $2 + 9$; Then, the answer would be $2/11$

11. What operation is performed first

(Lesson 14-3)

$$8 + 16 \div 4 - 2$$

Division

16. What operation is performed first

(Lesson 14-3)

$$12 \times (4 + 6) \div 6$$

addition

17. What is the value of the expression?

(Lesson 14-3)

$$5 \times 25 - 18 \times 2$$

$$(5 \times 25) - (18 \times 2)$$

$$= 125 - 36$$

$$= 89$$

Use the information given for Exercises 1–8.

Quentin and Tyler are running laps on the school track. Each time they complete a lap, they do jumping jacks.

They both do 0 jumping jacks after the first lap.

Each lap, Quentin adds 1 jumping jack to the number of jumping jacks he did after the lap before.

Each lap, Tyler adds 4 jumping jacks to the number of jumping jacks he did after the lap before.

Quinton	0	1	2	3	4	5	6	7	8	9	10
Tyler	0	4	8	12	16	20	24	28	32	36	40

1. What is the rule for Quentin's numerical pattern?

Add 1

2. What is the rule for Tyler's numerical pattern?

Add 4

3. Write the first 5 terms of Quentin's numerical pattern.

0, 1, 2, 3, 4

4. Write the first 5 terms of Tyler's numerical pattern.

0, 4, 8, 12, 16

5. When Quentin does 4 jumping jacks after a lap, how many jumping jacks will Tyler do after that same lap?

16 jumping jacks

6. What is a relationship between corresponding terms in the two numerical patterns?

Multiply the number in Quentin's pattern by 4. The product is the number in Tyler's pattern.

7. How many jumping jacks will Tyler do after the lap when Quentin does 8 jumping jacks?

32 jumping jacks

8. How many jumping jacks will Quentin do after the lap when Tyler does 40 jumping jacks?

10 jumping jacks

4. Write the first 5 terms of Tyler's numerical pattern.

Use Numerical Patterns A and B for Exercises 9–12.

Numerical Pattern A: 0, 2, 4, 6, 8, 10, 12

Numerical Pattern B: 0, 6, 12, 18, 24, 30, 36

9. What is the rule for Pattern A?

add 2

10. What is the rule for Pattern B?

add 6

11. What is a relationship between the corresponding terms in the two numerical patterns?

Multiply the number in pattern A by 3 and the product is the number in pattern B.

12. When the number in Pattern A is 28, what will be the number in Pattern B?

$$28 \times 3 = 84$$

18. Jared and Robert are playing different video games. Jared passes 2 levels each time he plays. Robert passes 3 levels each time he plays. When Jared passes 8 levels, how many levels will Robert have passed playing the same number of times?

Jared	2	4	6	8	10	12
Robert	3	6	9	12	15	18

12 levels

25. Pattern A starts at 0 and adds 4. Pattern B starts at 0 and adds 8. What is the term for Pattern B when Pattern A's term is 24?

(Lesson 14-4)

A	0	4	8	12	16	20	24	28	32	36	40
B	0	8	16	24	32	40	48	56	64	72	80

Pattern B is 48