حل تجميعة أسئلة شاملة وفق الهيكل الوزاري الجديد منهج ريفيل

وزارة التربية والتعليم

MINISTRY OF EDUCATION

أسئلة مراجعة لمادة رياضيات

الصف السادس ريفيل

الفصل الدراسي الاول

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مدرسة العدل ح2

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Question 1: Show the ratio relationship between two quantities using different representations (Page 11)

1 to 6

1. In Suri's coin purse, she has 6 dimes and 4 quarters. Martha has 5 dimes and 3 quarters. Suri thinks that the ratio of dimes to quarters in both purses is the same because they each have 2 more quarters than dimes. Is the same ratio of dimes to quarters maintained? Justify your response.

2. In a trivia game, Levi answered 8 questions correctly out of 10 turns in the game. He then answered the next three questions correctly. He reasoned that because he added 3 to both the total questions and his correct responses, that the ratio of correct answers to total questions remained the same. Is he correct? Justify your response.

3. Riley needs to make fruit punch for the family reunion. One batch of punch has the ingredients shown. If the punch bowl holds 27 cups, how many cups of orange juice will she need to keep the ratio in a full punch bowl the same? (Example 2)

Item	Cups
Cranberry Juice	4
Lemon Lime Soda	1
Orange Juice	2
Pineapple Juice	2

4. A small fruit basket contains the fruits shown. A large basket has the same ratio of fruits as the small basket. If the large basket has 42 total pieces of fruit, how many are pears? (Example 2)

Type of Fruit	Amount
Apple	6
Orange	5
Pear	3

5. Mrs. Santiago is buying doughnuts for her office. Each box contains 6 glazed, 4 cream filled, and 2 chocolate flavored doughnuts. If there were 20 total cream filled doughnuts, how many chocolate doughnuts did she buy? (Example 3)

6. A small batch of trail mix contains 2 cups of raisins, 2 cups of peanuts, 1 cup of sunflower seeds, and 1 cup of chocolate coated candies. A large batch has the same ratio of ingredients as a small batch. If the large batch has 8 cups of peanuts, how many cups of sunflower seeds are in a large batch? (Example 3) 4 cups

Question 2: Represent a collection of equivalent ratios (page 15-18)

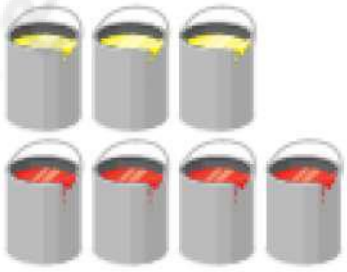
Example:

To make yellow icing, Amida mixes 6 drops of yellow food coloring with 2 cups of white icing.

How many drops of yellow food coloring should Amida mix with 8 cups of white icing to get the same shade of yellow?

Example:

Akeno mixes three sample containers of yellow paint with four sample containers of red paint to create his favorite shade of orange paint. His little sister Aiko wants to create the same shade of orange paint, but she only has two sample containers of red paint.



Example:

The ingredients needed to make 24 biscuits are shown in the table.

Homemade Biscuits
4 c flour
8 tsp baking powder
2 tbsp sugar
1 tsp salt
1 c shortening
2 large eggs
2 c milk

If Portia wants to only make 18 biscuits, how many cups of flour does she need?

Use a double number line to solve this problem. A **double number line** consists of two number lines, in which the coordinated quantities are equivalent ratios.

Step 1 Draw a double number line.

Example:

Natasha made raspberry punch for a party by mixing 9 fluid ounces of fruit punch, 3 liters of soda, and 6 scoops of raspberry ice cream. Halfway through the party, the punch bowl was empty.

If Natasha only has 6 fluid ounces of fruit punch left, how much ice cream does she need to make another batch of punch?

Question 3: Solve real-world problems involving ratio relationships by using bar diagrams, double number lines and equivalent ratios (page 45)

1 to 8

1. A survey showed that 4 out of 5 students own a bicycle. Based on this result, how many of the 800 students in a school own a bicycle?

2. A survey of Mr. Thorne's class shows that 5 out of 8 students will buy lunch today. Based on this result, how many of the 720 students in the school will buy today?

3. The ratio of the number of baskets made by T ony to the number of baskets made by Colin is 2 to 3. T ony made 10 baskets. How many baskets did Colin make?

4. In the school choir, there is 1 boy for every 4 girls. There are a total of 11 boys. How many girls are in the choir?

5. Liberty Middle School has 600 students. In Anna's class, 3 out of 8 students walk to school. How many students at the school can be expected to walk to school?

6. Pine Hill Middle School has 300 students. In Zoey's class, 2 out of 5 students belong to a club. How many students at the school would you expect belong to a club?

7. In a survey, the ratio of students who prefer popcorn to potato chips is 3 to 4. If the number of students surveyed who prefer popcorn is 360, how many preferred potato chips?

8. Open Response In a neighborhood, the ratio of houses with swing sets to houses without swing sets is 3 to 5. If the number of houses with swing sets is 270, how many houses do not have swing sets?

Question 4: Use ratio reasoning to covert between customary units of measurement (page 55)

1 to 10

1. Mrs. Menary made $4\frac{1}{2}$ quarts of lemonade for a school party. How many fluid ounces of lemonade did she make?

2. A class walked 2.5 miles for a walk-a-thon. How many yards did the class walk?

3. The Martinez family has $\frac{3}{4}$ gallon of orange juice in the refrigerator. How many cups of orange juice are in the refrigerator?

4. A grand piano can weigh $\frac{1}{2}$ ton. How many ounces can a grand piano weigh?

5. A female hippopotamus can weigh 48,000 ounces. How many tons can a female hippopotamus weigh?

6. At soccer practice, Tracey's best kick traveled a distance of 1,200 inches. For how many yards did she kick the ball?

7. An elephant can drink up to 6,400 fluid ounces of water a day. How many gallons of water can an elephant drink per day?

8. A recipe for ice cream calls for 56 fluid ounces of milk. How many pints of milk are there in the recipe?

9. One quart of strawberries weighs about 2 pounds. About how many quarts of strawberries would weigh $\frac{1}{4}$ ton?

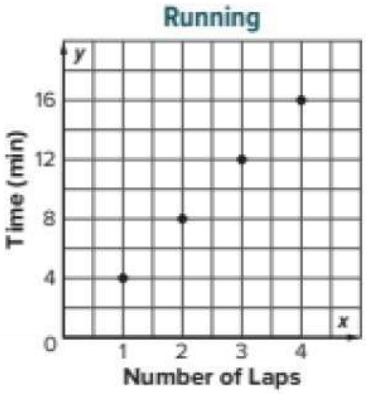
10. Open Response A mini fruit juice box contains 4 fluid ounces of juice. Y ou need $2\frac{1}{2}$ quarts of fruit juice. How many mini fruit juice boxes will you need?

Question 5: Graph ratio relationship on the coordinate plane (page 28)

4 to 8

4. Multiselect Lacy is running laps around the track. The time in minutes and the number of laps ran are shown in the graph. Which of the following is true about the ratio relationship shown in the graph?

- ☐ Every 4 minutes, Lacy ran 1 lap.
- ☐ Lacy ran 8 laps in 2 minutes.
- ☐ It took Lacy 1 minute to run 4 laps.
- ☐ In 16 minutes, Lacy completed 4 laps.
- ☐ Based on the relationship, it would take Lacy 20 minutes to complete 5 laps.



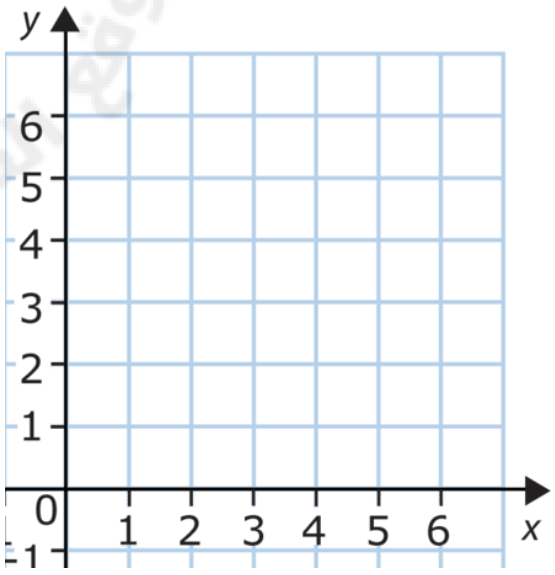
5. MP Identify Structure There are 4 quarters for every one dollar and 10 dimes for every dollar. Without graphing, would the ratio of quarters to dollars or dimes to dollars appear to have a steeper line? Explain your reasoning.

6. What are the advantages of graphing when solving problems that involve ratios?

7. **Reason Abstractly** The table gives the number of beads needed to make bracelets of certain lengths. Suppose you graph the ordered pairs (bracelet length, number of beads) on the coordinate plane. Would the point (10.5, 42) make sense in this context? Explain.

Bracelet Length (in.)	7	8	9	10
Number of Beads	28	32	36	40

8. Multiple Relationships For every second, the average green sea turtle can swim 9 meters. Represent how far a green sea turtle can swim in 1, 2, 3 and 4 seconds in a table. Then graph the points on a coordinate plane.



Question 6: Use ratio and rate reasoning

to find a unit rate: (page 63)

1 to 8

1. A hippopotamus can run 6 kilometers in 15 minutes. At this rate, how far can the hippopotamus run in 1 minute? (Example 1)

2. Imena earned $261 last week. If she worked 18 hours and earned the same amount each hour, how much was she paid per hour? (Example 1)

3. A cat's heart beats approximately 45 times in 15 seconds. At this rate how many times does the cat's heart beat per second? (Example 1)

4. Mr. Farley used 4 pounds of hamburger to make 10 hamburger patties of the same size. How many pounds of hamburger did he use per patty? (Example 1)

5. At the school festival, Heather can buy 25 game tickets for $10, or she can pay $0.50 per game ticket. Which option has the lesser price per ticket? (Example 2)

6. At a toy store, Colton can buy a package of 6 mini footballs for $7 .50, or a package of 8 mini footballs for $9.60. Which option has the lesser price per mini football? (Example 2)

7. The table shows the options Zoe's mother has for buying tickets to an adventure day camp for Zoe and 5 of her friends. Which option has the lesser cost per student ticket? (Example 2)

Adventure Camp Tickets	
Option	**Cost ($)**
6-pack of Student Tickets	126.00
Individual Student Ticket	21.50

8. Multiple Choice Which of the following offers the least price per ounce of shampoo?

a) 6$ for 8 ounces of shampoo.

b) 8$ for 12 ounces of shampoo.

c) 4$ for 12 ounces of shampoo

d) 6$ for 10 ounces of shampoo

Question 7: Solve real-world problems involving ratio relationships by using bar diagrams, double number lines and equivalent ratios (page 71)

1 to 6

1. Mr. Anderson is ordering pizzas for a class pizza party. Pizza Place has a special where he can buy 3 large pizzas for $18.75. At Mario's Pizzeria, he can buy 4 large pizzas for $22. If he needs to buy 12 pizzas, how much will he save if he buys the pizzas from Mario's Pizzeria instead of Pizza Place? (Example 1)

2. Skylar and Rodrigo each recorded how far they traveled while skateboarding. Skylar traveled 65 feet in 5 seconds and Rodrigo traveled 108 feet in 8 seconds. How much farther did Rodrigo travel per second than Skylar? (Example 1)

3. Melissa is buying party favors to make gift bags. Supplies LTD sells a 5-pack of favors for $11.25 and Parties and More sells a 3-pack of favors for $8.25. At these rates, how much will she save if she buys 15 favors from Supplies LTD than Parties and More? (Example 1)

4. Tara can type 180 words in 4 minutes. At this rate, how many words can she type in 10 minutes? (Example 2)

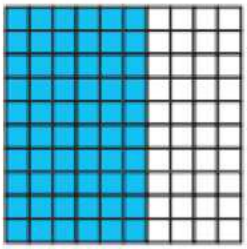
5. A bakery makes 260 donuts in 4 hours. At this rate, how many donuts can they make in 6 hours? (Example 2)

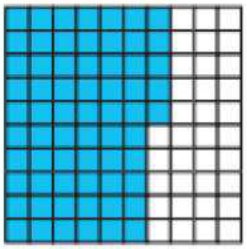
6. **Open Response** While jumping rope, Juan jumped 24 times in 30 seconds. At this rate, how many times will he jump in 50 seconds?

Question 8: Model percent using 10 x 10 grids and bar diagrams: (page 83)

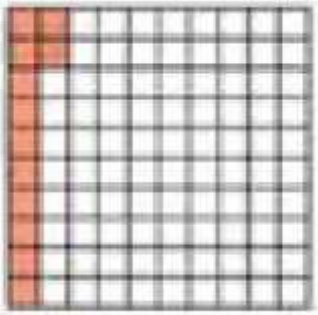
1 to 8

For Exercises 1 and 2, identify the percent represented by each 10 × 10 grid. (Example 1)

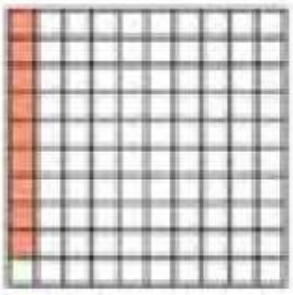
1.  ____

2.  ____

3. In a school survey, 12% of the students surveyed said they like camping. Shade the 10 × 10 grid to model 12%. (Example 2)

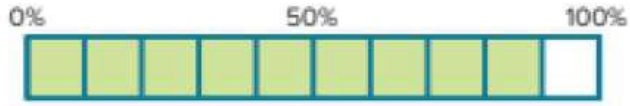


4. Of the students in the lunch line, 9% said they were buying strawberry milk. Shade the 10 × 10 grid to model 9%. (Example 2)

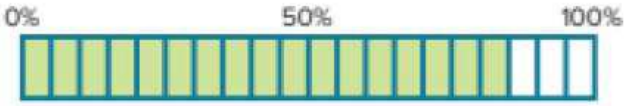


For Exercises 5 and 6, identify the percent represented by each bar diagram. (Example 3)

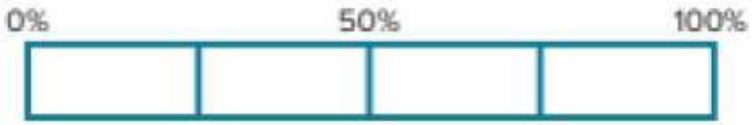
5. _____



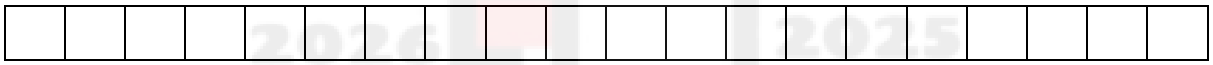
6. _____



7. Shade the bar diagram to model 25%.
(Example 4)



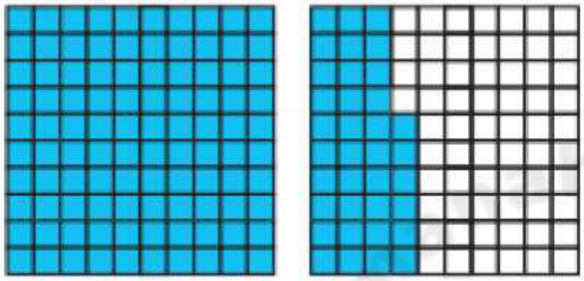
8. Open Response How can you use a bar diagram to model 45%?



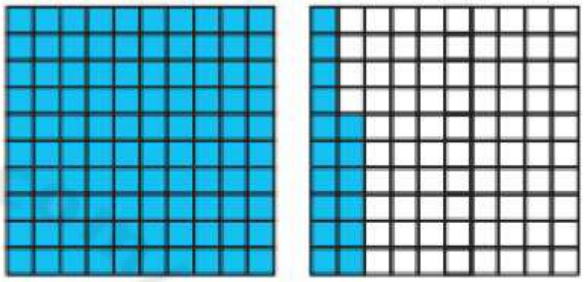
Question 9: Use 10 x 10 grids and bar diagrams to represent percent greater than 100% or less than 1% (page 91)

1 to 4

1.



2.



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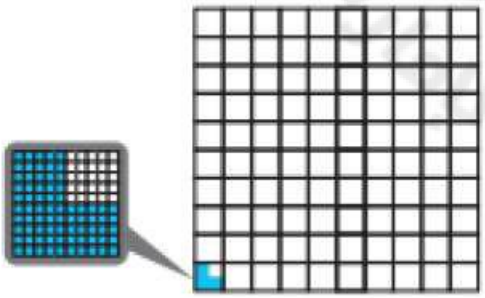
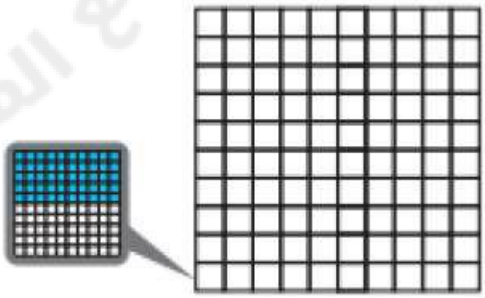


4.



Question 10: Relate fractions, decimals and percent by using place-value reasoning and understanding a percent as a ratio that compares a number to 100 (page101)

1. 45%

2. 72%

3. 80%

Question 11: Relate fractions, decimals and percent by using place-value reasoning and understanding a percent as a ratio as number to 100 (page101)

4. $\frac{3}{20}$

5. $1\frac{3}{4}$

6. $\frac{5}{8}$

Question 12: Find a percent of a number by reasoning about percent as a rate per 100 and by using bar diagrams, ratio tables, equivalent ratios (page105-109)

Example:

The graph shows the types of snacks that students at Y ork Middle School bring with them to school. Suppose there are 300 students at the school.

How many of them bring cheese for a snack?

First, identify the part, the whole, and the percent. The part is unknown. The whole is 300. The percent is 15%.

1. The graph shows the career interests of the students at Linda's school. Suppose there are 400 students at the school. How many of them want to be an athlete? (Example 1)

2. The graph shows the favorite activities of campers at a summer camp. Suppose there are 300 campers at the camp. How many campers favor fishing? (Example 1)

Use any method to find the percent of each number. (Examples 2–4)

3. 15% of 240 = _____

4. 65% of 180 = _____

5. 250% of 82 = _____

9. Open Response Kenzie is putting the family vacation videos onto a flash drive. The flash drive can hold 200 minutes of video. Kenzie has used 45% of the memory space already. How many minutes of the flash drive has she already used?

Question 13: Estimate the percent of a number by using benchmark percents and rounding: (Page 119)

7. Emilia and her three sisters went out to dinner. The total cost of their dinner was $38.75. They want to leave a tip that is 23% of the total bill. About how much of a tip should they leave?

8. Karl earned $188 last month doing chores after school. If 68% of the money he earned was from doing yard work, about how much did Karl earn doing yard work?

9. The concession stand at a football game served 288 customers. Of those customers, about 77% bought a hot dog. About how many customers bought a hot dog?

10. In a recent season, the Chicago Cubs won 64% of the 161 regular season games they played. About how many games did they win?

11. The table shows how the 515 students at West Middle School get to school. About how many of the students walk to school?

Method	Percent of Students
Bus	53%
Car	21%
Walk	26%

12. Open Response Carolyn's homeroom sold 207 magazine subscriptions. Of the magazine subscriptions sold, 28% were for fashion magazines. About how many fashion magazine subscriptions were sold?

Question 14: Find the whole, given the part and the percent by using bar diagrams, ratio tables, double number lines, and equivalent ratios (page:127)

1. Y olanda's club requires that 80% of the members be present for any vote. If at least 20 members must be present to have a vote, how many members does the club currently have?

2. Action movies make up 25% of Sara's DVD collection. If she has 16 action DVDs, how many DVDs does Sara have in her collection?

3. Marcus saved $10 because he bought a baseball glove that was on sale for 40% off. What was the original price of the baseball glove?

4. Of the students in the marching band, 55% plan to go to the school dance. If there are 110 students in the marching band that are going to the dance, how many students are in the marching band?

5. Melcher used 24% of the memory card on his digital camera while taking pictures at a family reunion. If Melcher took 96 pictures at the family reunion, how many pictures can the memory card hold?

6. Mallorie has $12 in her wallet. If this is 20% of her monthly allowance, what is her monthly allowance?

Question 15: Solve problems by using the standard algorithms for addition, subtraction, multiplication, and division to compute with multi-digit decimals (page:153)

1. $34.672 + 15.31 =$

2. $152.875 + 35.4 =$

3. $139.65 - 59.623 =$

4. $352.37 - 231.975 =$

Question 16: Solve problems by using the standard algorithms for addition, subtraction, multiplication, and division to compute with multi-digit decimals (page:153)

5. $0.025 \times 1.24 =$

6. $17.15 \times 1.062 =$

Question 17: Use the standard algorithm to divide multi-digit numbers when solving problems (page: 141)

1. $52{,}080 \div 15 =$

2. $38{,}480 \div 26 =$

3. $648 \div 18 =$

4. $3{,}409 \div 14 =$

5. $8{,}890 \div 40 =$

6. $3{,}120 \div 64 =$

7. $6{,}750 \div 240 =$

8. $4{,}415 \div 800 =$

Question 18: Apply prior knowledge about multiplication, division, and operations on multi-digit numbers to divide whole numbers by fractions (page:165)

6. $3 \div \frac{1}{4} =$

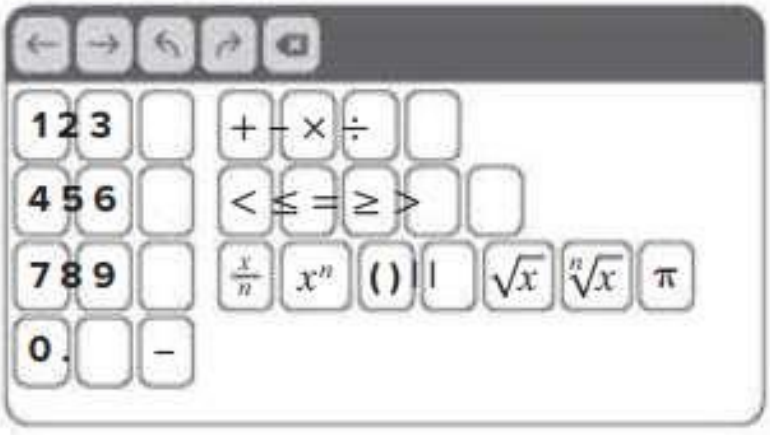
7. $4 \div \frac{2}{5} =$

8. $6 \div \frac{2}{3} =$

9. Marie is making scarves. She has 7 yards of fabric and each scarf needs $\frac{5}{8}$ yard of fabric. Find $7 \div \frac{5}{8}$. Then interpret the quotient.

10. Roberto is at a tennis day camp. The coach has set aside 2 hours to play mini matches that last $\frac{3}{5}$ hour. Find $2 \div \frac{3}{5}$. Then interpret the quotient.

11. Equation Editor What is the value of $15 \div \frac{5}{9}$?



Question 19: Apply prior knowledge about multiplication and division with whole numbers and the division of whole numbers by fractions to divide fractions by fractions (page:175)

1. $\frac{5}{6} \div \frac{5}{12} =$

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

3. $\frac{3}{7} \div \frac{1}{14} =$

4. Romeo had $\frac{3}{4}$ pound of fudge left. He divided the remaining fudge into $\frac{5}{16}$-pound bags. Write and solve an equation that models the situation. Then interpret the quotient.

5. Chelsea has $\frac{7}{8}$ pound of butter to make icing. Each batch of icing needs $\frac{1}{4}$ pound of butter. Write and solve an equation that models the situation. Then interpret the quotient.

6. Write a story context for $\frac{5}{6} \div \frac{1}{6}$. Then find the quotient.

7. Equation Editor What is the value of the expression $\frac{2}{5} \div \frac{1}{6}$?

Question 20: Apply prior knowledge about division and reciprocals to divide fractions by whole and mixed numbers. (page:185)

1. The drama teacher is making bandanas for costumes. She is cutting $\frac{1}{2}$ yard of fabric into 6 bandanas of the same size. Write and solve an equation to find how much fabric there will be for each bandana.

2. A landscape designer has $\frac{4}{5}$ ton of mulch to divide equally among 8 customers. Write and solve an equation to find how much mulch each customer will receive.

3. $2\frac{4}{5} \div 4 =$

4. $6\frac{2}{3} \div 8 =$

5. $4\frac{2}{3} \div 6 =$

6. $3\frac{3}{5} \div 1\frac{1}{2} =$

7. $3\frac{3}{4} \div 1\frac{2}{3} =$

8. $4\frac{1}{2} \div 2\frac{7}{10} =$

Free response questions (FRQ)

الأسئلة المقالية (الكتابية)

ملاحظة: يجب على الطالب التدرب جيداً على طريقة الحل وكتابة جميع خطوات الحل في الجزء الكتابي.

متمنياً للجميع النجاح والتوفيق

Question 21: Represent a collection of equivalent ratios (page:15,16,17)

Example:

To make yellow icing, Amida mixes 6 drops of yellow food coloring with 2 cups of white icing.

How many drops of yellow food coloring should Amida mix with 8 cups of white icing to get the same shade of yellow?

Example:

Akeno mixes three sample containers of yellow paint with four sample containers of red paint to create his favorite shade of orange paint. His little sister Aiko wants to create the same shade of orange paint, but she only has two sample containers of red paint.

What should Aiko do to create the same shade of orange paint?

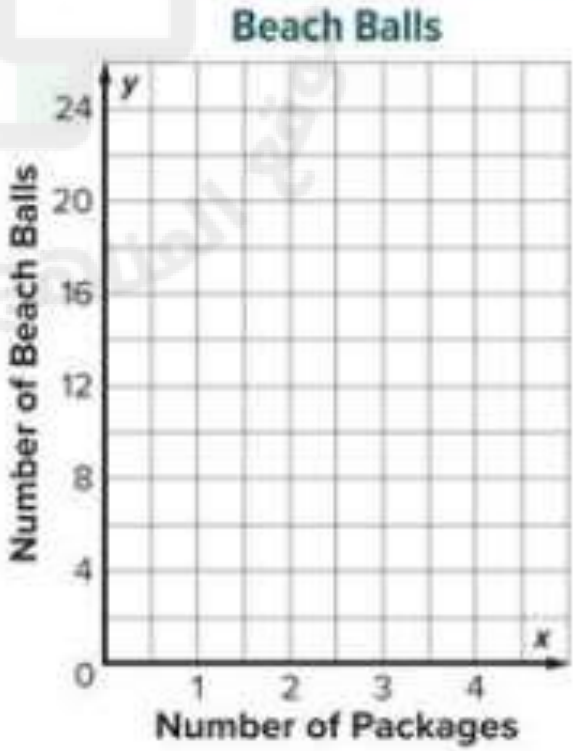
Example:

Natasha made raspberry punch for a party by mixing 9 fluid ounces of fruit punch, 3 liters of soda, and 6 scoops of raspberry ice cream. Halfway through the party, the punch bowl was empty.

If Natasha only has 6 fluid ounces of fruit punch left, how much ice cream does she need to make another batch of punch?

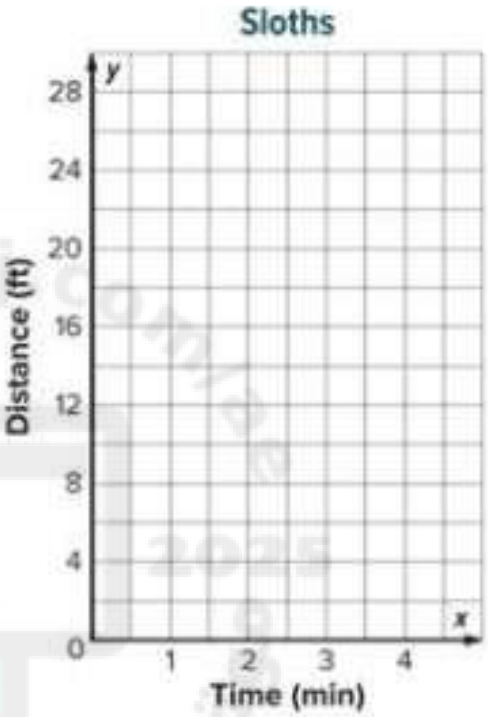
Question 22: Graph a ratio relationship on the coordinate plane (page: 27,28)

1. Lulah is buying beach balls for her beach themed party. Each package contains 6 beach balls. Generate the set of ordered pairs for the ratio relationship between the number of beach balls y and the number of packages x for a total of 1, 2, 3, and 4 packages. Then graph the relationship on the coordinate plane and describe the pattern in the graph. (Examples 1 and 2)

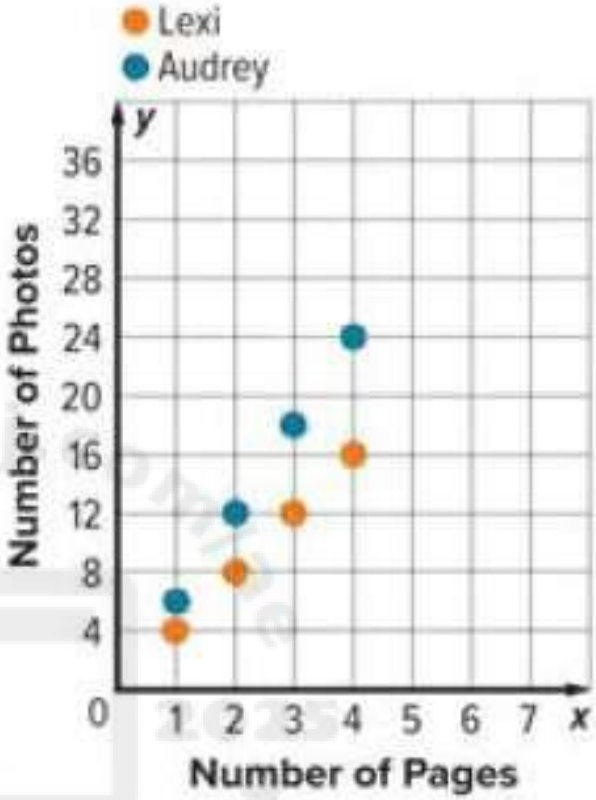


2. A sloth travels about 7 feet every minute. Generate the set of ordered pairs for the ratio relationship between the total distance traveled y and the number of minutes x for a total of 1, 2, 3, and 4 minutes. Then graph the relationship on the coordinate plane and describe the pattern in the graph.

(Examples 1 and 2)



3. Two friends are making scrapbooks. The number of photos Lexi and Audrey place on each page of their scrapbooks is shown in the graph. Describe the ratio relationship for each person.



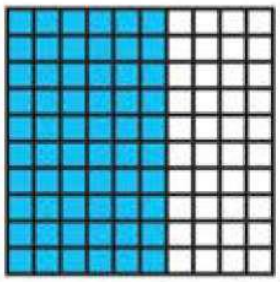
7. **Reason Abstractly** The table gives the number of beads needed to make bracelets of certain lengths. Suppose you graph the ordered pairs (bracelet length, number of beads) on the coordinate plane. Would the point (10.5, 42) make sense in this context? Explain.

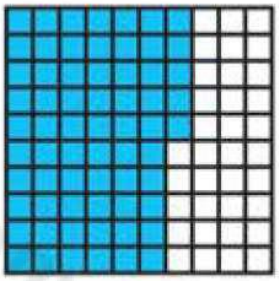
Bracelet Length (in.)	7	8	9	10
Number of Beads	28	32	36	40

8. Multiple Relationships For every second, the average green sea turtle can swim 9 meters. Represent how far a green sea turtle can swim in 1, 2, 3 and 4 seconds in a table. Then graph the points on a coordinate plane.

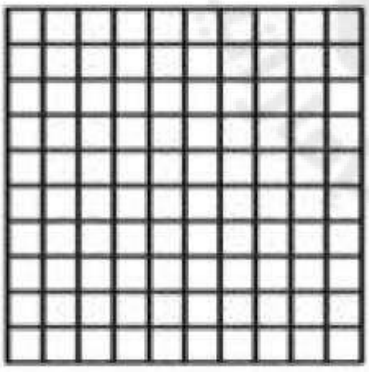
Question 23: Show a ratio relationship between two quantities using different representations (page:83)

For 1,2 identify the percent represented by each 10 × 10 grid:

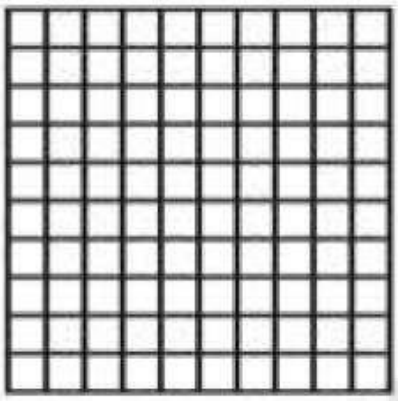
1. 

2. 

3. In a school survey, 12% of the students surveyed said they like camping. Shade the 10 × 10 grid to model 12%. (Example 2)

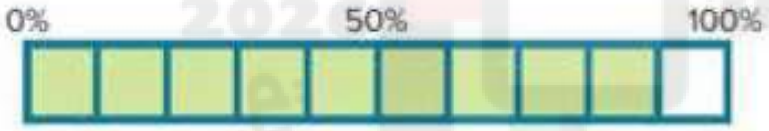


4. Of the students in the lunch line, 9% said they were buying strawberry milk. Shade the 10 × 10 grid to model 9%. (Example 2)



identify the percent represented by each bar diagram:

5. _____



6. _____

Question 24: Find the whole, given the part and the percent by using bar diagrams, ratio tables, double number lines, and equivalent ratios (page 127,128)

8. Open Response The number of sixth grade students accounts for 35% of the total number of students enrolled in middle school. There are 245 sixth grade students. How many students are enrolled in the middle school?

9. Three different options for school lunch were offered on Friday. The table shows the percent of the total lunches sold for each option. If 270 students bought a cheese pizza or a pepperoni pizza, how many lunches were sold on Friday? If each lunch costs $3.50, how much money will the cafeteria earn from all of the lunches?

Option	Percent
Cheese Pizza	50
Pepperoni Pizza	40
Fried Chicken	10

Question 25: Solve problems by using the standard algorithms for addition, subtraction, multiplication, and division to compute with multi-digitt (Page 153)

Find each difference:

3. 139.65 − 59.623 =

4. 352.37 − 231.975 =

Find each quotient:

7. $32.674 \div 0.016 =$

8. $3.825 \div 0.25 =$