حل تجميعة أسئلة وفق الهيكل الوزاري الجديد منهج ريفيل

تم تحميل هذا الملف من موقع المناهج الإماراتية
موقع المناهج ⇦ المناهج الإماراتية ⇦ الصف السادس ⇦ رياضيات ⇦ الفصل الأول ⇦ ملفات متنوعة ⇦ الملف
تاريخ إضافة الملف على موقع المناهج: 11-11-2025 00:36:35

المزيد من مادة رياضيات:	ملفات ا كتب للمعلم ا كتب 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 ا للمدرس

التواصل الاجتماعي بحسب الصف السادس					
صفحة المناهج الإماراتية على فيسبوك					
المواد على تلغرام	التربية الاسلامية	اللغة العربية	اللغة الانجليزية	الرياضيات	

المزيد من الملفات بحسب الصف السادس والمادة رياضيات في الفصل الأول	
1	تجميعة أسئلة وفق الهيكل الوزاري الجديد منهج ريفيل
2	كراسة تدريبية مراجعة وفق الهيكل الوزاري الجديد منهج بريدج
3	حل مراجعة الوحدة الثالثة إجراء عمليات حسابية على الأعداد متعددة الأرقام
4	مراجعة الوحدة الثالثة إجراء عمليات حسابية على الأعداد متعددة الأرقام
5	حل مراجعة الوحدة الثانية الأعداد العشرية والكسور والنسب المئوية

Grade 6
End of Term 1
Answers

Question 1: Show a ratio relationship between two quantities using different representations

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.

Suri's Ratio is → 6:4

Martha Ratio is → 5:3

No not the same

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.

Original Ratio was → 8:10

New Ratio is

8 +3 = 11

10 +3 = 13 → 11:13

The ratios are not the same

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?

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

+

9

4 + 1 + 2 + 2 = 9

$$\frac{2}{9} = \frac{orange}{27}$$

2 x 27 = 54

$54 \div 9 = 6\ cups$

4. A small fruit basket contains the fruits shown. A large basket has the same ratio of fruits as the small basket.

Type of Fruit	Amount
Apple	6
Orange	5
Pear	3

+

14

If the large basket has 42 total pieces of fruit, how many are pears?

6 + 5 + 3 = 14

$$\frac{3}{14} = \frac{pears}{42}$$

3 x 42 = 126

$126 \div 14 = 9\ pieces$

Question 1: Show a ratio relationship between two quantities using different representations

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?

Step 1:

Glazed	6
Cream	4
Chocolate	2

Step 2:

Cream / Chocolates $\quad \frac{4}{2} = \frac{20}{chocolates}$

Step 3 :

2 x 20 = 40

Step 4: $40 \div 4 = 10\ chocolate\ doughnuts$

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?

Step 1:

Peanuts / Sunflower $\quad \frac{2}{1} = \frac{8}{s}$

Step 2:

1 x 8 = 8

Step 3 :

$8 \div 2 = 4\ cups\ of\ sunflower$

Question 2: Represent a collection of equivalent ratios

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Example 1 Scale Forward to Find Equivalent Ratios

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?

Step 1 Create a ratio table with the given information.

For every 6 drops of yellow food coloring, there are 2 cups of icing. The unknown is the number of drops of yellow needed to mix with 8 cups of icing.

Drops of Yellow	6	?
Cups of Icing	2	8

Step 2 Scale forward to find how many drops of yellow Amida needs to mix with 8 cups of icing.

Drops of Yellow	6	24
Cups of Icing	2	8

×4 ×4

Because 2 × _____ = 8, multiply 6 by _____ to obtain 24.

The ratios 6 : 2 and 24 : 8 are equivalent ratios.

So, Amida should mix _____ drops of yellow food coloring with 8 cups of white icing to get the same shade of yellow.

Example 2 Scale Backward to Find Equivalent Ratios

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?

Step 1 Create a ratio table with the given information.

For every 3 containers of yellow paint, there are 4 containers of red paint. The unknown is the amount of yellow paint needed to mix with 2 containers of red paint.

Yellow Paint (containers)	?	3
Red Paint (containers)	2	4

Step 2 Scale backward to find the equivalent ratio.

÷2 ÷2

Yellow Paint (containers)	1.5	3
Red Paint (containers)	2	4

Because 4 ÷ 2 = 2, divide 3 by _____ to obtain _____ .

The ratios 1.5 to 2 and 3 to 4 are equivalent.

So, Aiko should mix _____ containers of yellow paint with 2 containers of red paint to create the same shade of orange paint.

Question 2: Represent a collection of equivalent ratios

Page:15-18

Example 3 Scale in Both Directions

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?

Step 1 Create a ratio table with the given information.

For every 9 fluid ounces of fruit punch, there are 6 scoops of raspberry ice cream. The unknown is the amount of ice cream needed to mix with 6 fluid ounces of fruit punch.

Fruit Punch (fl oz)	6	9
Ice Cream (scoops)	?	6

There is no whole number by which you can multiply 6 to obtain a product of 9.

Step 2 Scale backward to find an equivalent ratio.

÷3

Fruit Punch (fl oz)	3	6	9
Ice Cream (scoops)	2	?	6

÷3

To scale back, you can divide both 9 and 6 by 3. This results in the equivalent ratio 3 : 2.

Step 3 Use the equivalent ratio you found to scale forward to find the desired equivalent ratio.

×2

Fruit Punch (fl oz)	3	6	9
Ice Cream (scoops)	2	4	6

×2

To scale forward, you can multiply both 3 and 2 by 2. This results in the equivalent ratio 6 : 4.

So, Natasha should mix _____ scoops of raspberry ice cream with the remaining 6 fluid ounces of fruit punch.

Example 4 Use a Double Number Line to Find Equivalent Ratios

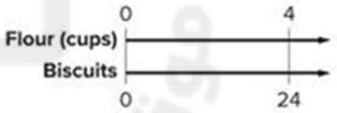
The ingredients needed to make 24 biscuits are shown in the table.

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?

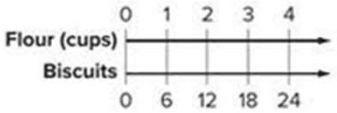
Use a double number line to solve this problem. A **double number line** consists of two number lines, in which the coordinated quantities are equivalent ratios.

Step 1 Draw a double number line.
The top number line represents the cups of flour and the bottom number line represents the number of biscuits.



To make 24 biscuits, Portia needs 4 cups of flour.

Step 2 Find the equivalent ratio.
To scale back, you can divide both 4 and 24 by 4. This results in the equivalent ratio 1 : 6. Divide the bottom number line into increments of 6 units and label the corresponding units for the top number line.



The value on the top number line that corresponds with 18 is 3.
So, to make 18 biscuits, Portia needs _____ cups of flour.

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

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?

Step 1:

$\frac{\text{bicycle}}{\text{students}} \quad \frac{4}{5} = \frac{b}{800}$

Step 2 :

4 x 800 = 3200

Step 3: 3200 ÷ 5

= 640 *students own a bicyle*

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?

Step 1:

$\frac{\text{Buy}}{\text{students}} \quad \frac{5}{8} = \frac{b}{720}$

Step 2 :

5 x 720 = 3600

Step 3: 3600 ÷ 8

= 450 *students*

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?

Step 1:

$\frac{\text{Student walk}}{\text{Total students}} \quad \frac{3}{8} = \frac{s}{600}$

Step 2 :

3 x 600 = 1800

Step 3: 1800 ÷ 8

= 225 *students*

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 to belong to a club?

Step 1:

$\frac{\text{Student belong}}{\text{Club}} \quad \frac{2}{5} = \frac{b}{300}$

Step 2 :

2 x 300 = 600

Step 3: 600 ÷ 5

= 120 *students*

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

Step 1:

$\frac{\text{Tony}}{\text{Colin}} \quad \frac{2}{3} = \frac{10}{c}$

Step 2 :

3 x 10 = 30

Step 3: 30 ÷ 2

= 15 *baskets*

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?

Step 1:

$\frac{\text{boy}}{\text{girl}} \quad \frac{1}{4} = \frac{11}{g}$

Step 2 :

4 x 11 = 44

Step 3: 44 ÷ 1

= 44 *girls*

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?

Step 1:

$\frac{\text{Popcorn}}{\text{Potato chips}} \quad \frac{3}{4} = \frac{360}{x}$

Step 2: $x = \frac{360 \times 4}{3} = 1444 \div 3 = 480$ students

Test Practice

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?

$\frac{\text{With swing}}{\text{Without swing}} \quad \frac{3}{5} = \frac{270}{x}$

X = (270 x 5) ÷ 3 = 450 houses

Question 4: Use ratio reasoning to convert between customary units of measurement

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

$4.5\ quarts = fl\ oz$

$4.5 \times 8 \times 2 \times 2$

$= 144$ fl oz

Larger Unit	→	Smaller Unit
1 cup (c)	=	8 fluid ounces (fl oz)
1 pint (pt)	=	2 cups
1 quart (qt)	=	2 pints
1 gallon (gal)	=	4 quarts

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?

$\frac{3}{4}\ gallon = cups$

$0.75 \times 2 \times 2 \times 4$

$= 12\ cups$

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

$2.5\ miles = yards$

$2.5 \times 5280 = 13200$

$= 13200 \div 3$

$= 4,400$ yards

Larger Unit	→	Smaller Unit
1 foot (ft)	=	12 inches (in.)
1 yard (yd)	=	3 feet
1 mile (mi)	=	5,280 feet

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

$\frac{1}{2}\ ton = ounces$

$0.5 \times 2000 \times 16$

$= 16,000$ ounces

Larger Unit	→	Smaller Unit
1 pound (lb)	=	16 ounces (oz)
1 ton (T)	=	2,000 pounds

Question 4: Use ratio reasoning to convert between customary units of measurement Page:55

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

Larger Unit	→	Smaller Unit
1 pound (lb)	=	16 ounces (oz)
1 ton (T)	=	2,000 pounds

48000 ounces = tons

$48000 \div (16 \times 2000)$

$48000 \div 32000$

$= 1.5\ tons$

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

Larger Unit	→	Smaller Unit
1 foot (ft)	=	12 inches (in.)
1 yard (yd)	=	3 feet
1 mile (mi)	=	5,280 feet

1,200 inches = yards

$1{,}200 \div (12 \times 3)$

$1{,}200 \div 36$

$= 33\frac{1}{3}\ yards$

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?

6,400 fl oz=gallons

$6{,}400 \div (8 \times 2 \times 2 \times 4)$

$6{,}400 \div 128$

= 50 gallons

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

Larger Unit	→	Smaller Unit
1 cup (c)	=	8 fluid ounces (fl oz)
1 pint (pt)	=	2 cups
1 quart (qt)	=	2 pints
1 gallon (gal)	=	4 quarts

56 fl oz= pints

$56 \div (8 \times 2)$

$56 \div 16$

= 3.5 pints

Question 4: Use ratio reasoning to convert between customary units of measurement Page:55

Test Practice

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

Larger Unit	→	Smaller Unit
1 pound (lb)	=	16 ounces (oz)
1 ton (T)	=	2,000 pounds

1 Quart strawberry = 2pounds

$\frac{1}{4}$ ton = $\frac{1}{4}$ x 2000 = 2000÷4 = 500 pounds

So number of quarts of strawberries= 500 ÷ 2 = 250 quarts

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

Larger Unit	→	Smaller Unit
1 cup (c)	=	8 fluid ounces (fl oz)
1 pint (pt)	=	2 cups
1 quart (qt)	=	2 pints
1 gallon (gal)	=	4 quarts

1 Quart = 4 cups = 32 fl. oz

$2\frac{1}{2}$ quarts = $2\frac{1}{2}$ x 32 = 80 fl.oz

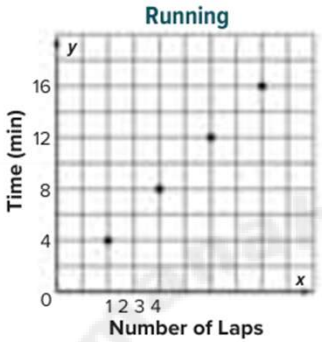
Mini fruit juice capacity = 4 fl.oz

Number of mini juice boxes = 80 ÷ 4 = 20 mini fruit juiceboxes

Question 5: Graph a ratio relationship on the coordinate plane

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.



Higher-Order Thinking Problems

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.

dimes to dollars; Sample answer: The ratio of dimes to dollars is 10 : 1 and the ratio of quarters to dollars is 4 : 1. Since 10 is greater than 4, the ratio of dimes to dollars will have a steeper line.

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

Sample answer: The graph allows you to see patterns, make predictions, and compare relationships more quickly than using another method.

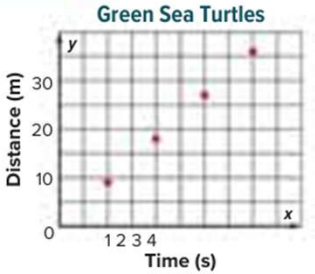
7. MP **Reason Abstractly** The table gives the number of beads needed to make bracelets of certain lengths. Suppose you graph the ordered pairs (bracelet length, number of beads) on the coordinate plane. Would the point (10.5, 42) make sense in this context? Explain.

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

yes; Sample answer: A bracelet could have a length of 10.5 inches and 42 beads.

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.

Time (s)	1	2	3	4
Distance (m)	9	18	27	36



Question 6: Use ratio and rate reasoning to find a unit rate

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

$\frac{6 \text{ kilometer}}{15 \text{ minutes}} \begin{matrix}\div 15 \\ \div 15\end{matrix} = \frac{0.4 \text{ kilometers}}{1 \text{ minute}}$

0.4 kilometer per 1 minute

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?

$\frac{\$ 261}{18 \text{ hours}} \begin{matrix}\div 18 \\ \div 18\end{matrix} = \frac{\$ 14.5}{1 \text{ hour}}$

$ 14.5 per 1 hour

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?

$\frac{45 \text{ heart beats}}{15 \text{ seconds}} \begin{matrix}\div 15 \\ \div 15\end{matrix} = \frac{3 \text{ heart beats}}{1 \text{ second}}$

3 heart beats per second

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?

$\frac{4 \text{ pounds}}{10 \text{ hamburgers}} \begin{matrix}\div 10 \\ \div 10\end{matrix} = \frac{0.4 \text{ pounds}}{1 \text{ hamburger}}$

0.4 pound per 1 hamburger

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?

$\frac{\$ 10}{25 \text{ games}} \begin{matrix}\div 25 \\ \div 25\end{matrix} = \frac{\$ 0.4}{1 \text{ game}}$

$ 0.4 < $ 0.50

25 game tickets for $10

6 At a toy store, Cotton 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?

$\frac{\$ 7.50}{6 \text{ mini}} \begin{matrix}\div 6 \\ \div 6\end{matrix} = \frac{\$ 1.25}{1 \text{ mini}}$ $\frac{\$ 9.60}{8 \text{ mini}} \begin{matrix}\div 8 \\ \div 8\end{matrix} = \frac{\$ 1.2}{1 \text{ mini}}$

$ 1.25 > $ 1.2

8 mini footballs for $9.60

7. The table shows the options Zoe's other 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?

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

$\frac{\$126}{6 \text{ tickets}} \begin{matrix}\div 6 \\ \div 6\end{matrix} = \frac{\$ 21}{1 \text{ ticket}}$ $ 21.50. / 1 ticket

$ 21 < $ 21.50

6-pack of student Tickets

Question 7: Solve real-world problems involving rates and unit rates by using bar diagrams, double number lines, and equivalent rates

Use any strategy to solve each problem.

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)

Pizza place

3 large pizza = $18.75

3 **x 4** = 12
Cost of 12 pizzas =
So $18.75 **x 4** = $75

Marios's Pizzeria

4 large pizza = $22

4 **x 3** = 12
So, cost of 12 pizzas =
$22 **x 3** = $66

Savings = $75 - $66 = **$9**

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)

Skylar
65 feet in 5 seconds
Unit rate = 65÷5 = 13 feet per second

Rodrigo
108 feet in 8 seconds
Unit rate= 108 ÷ 8 = 13.5 feet per second

Difference = 13.5 – 13 = 0.5 feet

Question 7: Solve real-world problems involving rates and unit rates by using bar diagrams, double number lines, and equivalent rates

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)

LTD store

5 pack for $11.25
Melissa needs to buy 3 such 5 packs, cost = 3 x $11.25 = $33.75

More store

3 pack for $ 8.25
Melissa needs to buy 5 such 3 packs , cost = 5 x$ 8.25 = $41.25

Savings = $41.25 -$33.75 = $7.50

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

Unit rate = 180 words ÷ 4 = 45 words per minute

Words typed in 10 minutes= 45 x 10 =**450 words**

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

Unit rate = 260 donuts ÷ 4 hours = 65 donuts per hour

Donuts made in 6 hours = 65 x 6 = 390 donuts

Test Practice

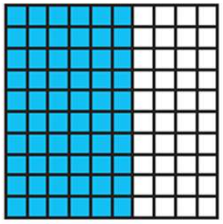
6. Open Response While jumping rope, Juan jumped 24 times in 30 seconds. At this rate, how many times will he jump in 50 seconds?

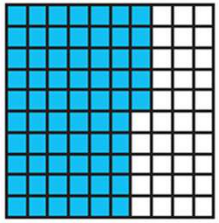
Unit rate = 24 ÷ 30 = 0.8 times per second

Jumps in 50 seconds = 0.8 x 50 **=40 times**

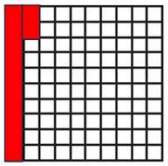
Question 8: Model percents using 10 x 10 grids and bar diagrams

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

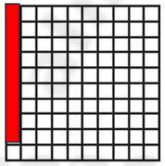
1.  60%

2.  65%

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



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

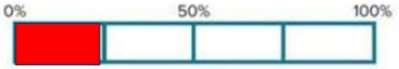


For Exercises 5 and 6, identify the percent represented by each bar diagram.

5. 90%

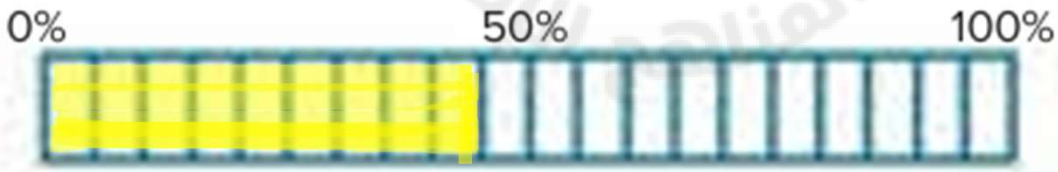
6. 85%

7. Shade the bar diagram to model 25%.



Test Practice

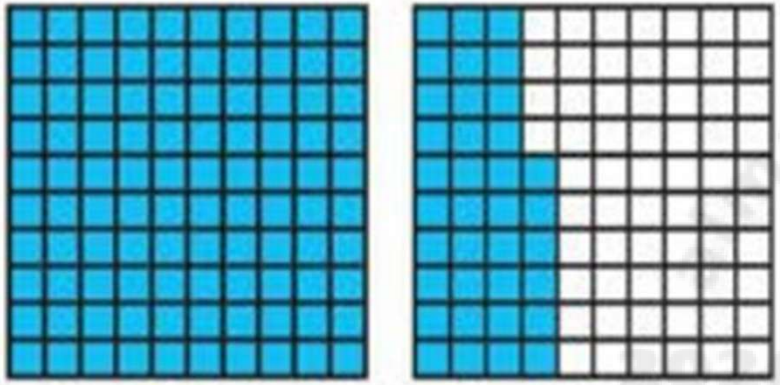
8. Open Response How can you use a bar diagram to model 45%?



Question 9: Use 10 x 10 grids and bar diagrams to represent percents greater than 100% or less than 1% Page:91

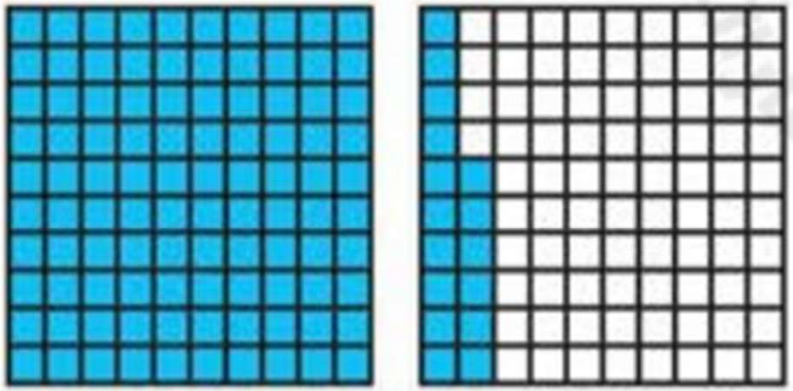
Identify the percent represented by the 10 x 10 grids.

1.



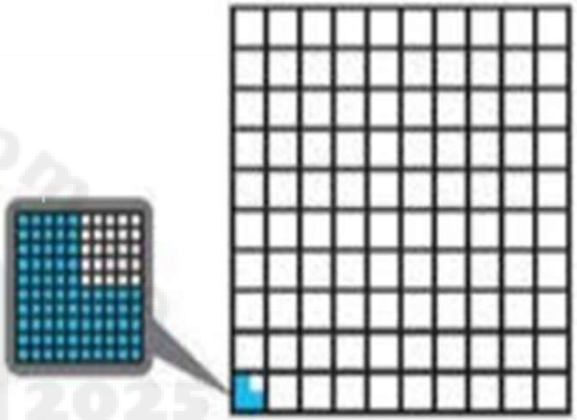
136%

2.



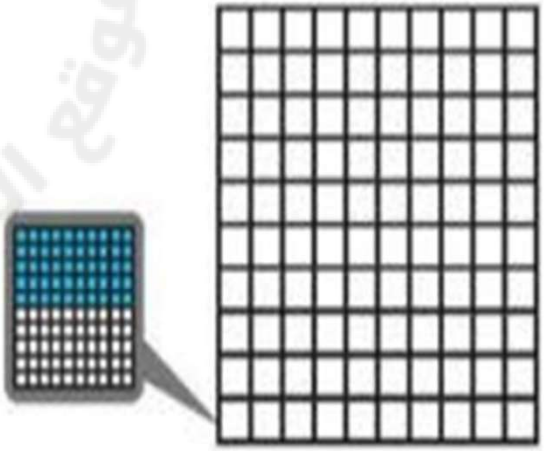
116%

3.



0.75%

4.



0.50%

Question 11: Relate fractions, decimals, and percents by using place-value reasoning and understanding a percent as a ratio as a number to 100 **Page:101**

Write each percent as a fraction in simplest form and as decimal.

1. 45%

$$\frac{45}{100} \begin{matrix}\div 5 \\ \div 5\end{matrix} = \frac{9}{20}$$

0.45

2. 72%

$$\frac{72}{100} \begin{matrix}\div 4 \\ \div 4\end{matrix} = \frac{18}{25}$$

0.72

3. 80%

$$\frac{80}{100} \begin{matrix}\div 20 \\ \div 20\end{matrix} = \frac{4}{5}$$

0.80 or 0.8

Write each fraction as a percent and as a decimal.

4. $\frac{3}{20} \begin{matrix}\times 5 \\ \times 5\end{matrix} = \frac{15}{100}$

15% ; 0.15

5. $1\frac{3}{4} \begin{matrix}\times 20 \\ \times 20\end{matrix} = \frac{75}{100}$

1.75% ; 1.75

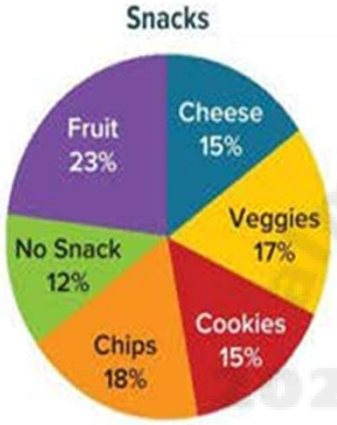
6. $\frac{5}{8} \begin{matrix}\times 12.5 \\ \times 12.5\end{matrix} = \frac{62.5}{100}$

62.5% ; 0.625

Question 12: Find the percent of a number by reasoning about percent as a rate per 100 and by using bar diagrams, ratio tables, equivalent ratios, **Page:105, 111**

Example 1 Find the Percent of a Number

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



How many of them bring cheese for a snack?

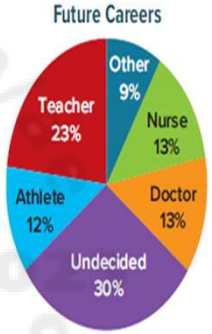
First, identify the part, the whole, and the percent. The part is unknown. The whole is 300. The percent is 15%.

Method 1 Use the rate per 100 and mental math.

The percent is 15%. This means, that for every 100 students, 15 of them bring cheese for a snack. This is the rate per 100.

$15 + 15 + 15$	There are three 100s in 300. For each 100, 15 students bring cheese as a snack.
$= 3 \times 15$	Write repeated addition as multiplication.
$= 45$	Multiply. 45 students bring cheese as a snack.

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?



$$\frac{Part}{whole} = \frac{}{100}$$

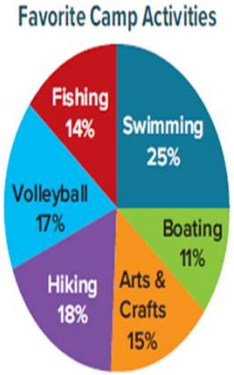
$$\frac{p}{400} = \frac{12}{100}$$

$p = 12 \times 400 = 4800$

$= 4800 \div 100$

$p = 48$

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?



$$\frac{Part}{whole} = \frac{}{100}$$

$$\frac{p}{300} = \frac{14}{100}$$

$p = 14 \times 300 = 4200$

$= 400 \div 100$

$p = 42$

Question 12: Find the percent of a number by reasoning about percent as a rate per 100 and by using bar diagrams, ratio tables, equivalent ratios, **Page:111**

Use any method to find the percent of each number.

3. 15% of 240 =

$= \frac{15}{100} \times 240$

$= \frac{15 \times 240}{100}$

$= \frac{3600}{100}$

$= 36$

4. 65% of 180 =

$= \frac{65}{100} \times 180$

$= \frac{65 \times 180}{100}$

$= \frac{11700}{100}$

$= 117$

5. 250% of 82 =

$= \frac{250}{100} \times 82$

$= \frac{250 \times 82}{100}$

$= \frac{20500}{100}$

$= 205$

Test Practice

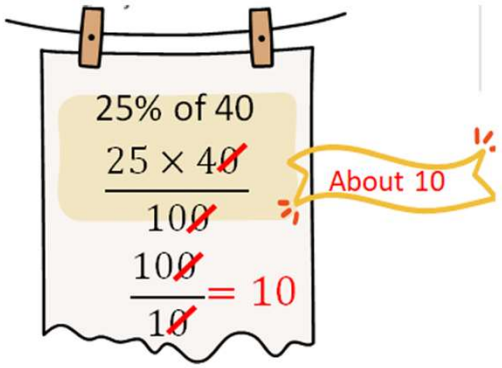
9. Open Response Kenzie is putting the family vacation videos onto a flash drive. The flash drive can hold 200 minutes of video. Kenzie has used 45% of the memory space already. How many minutes of the flash drive has she already used?

45 % of 200 = $\frac{45}{100}$ x 200 = **90 minutes**

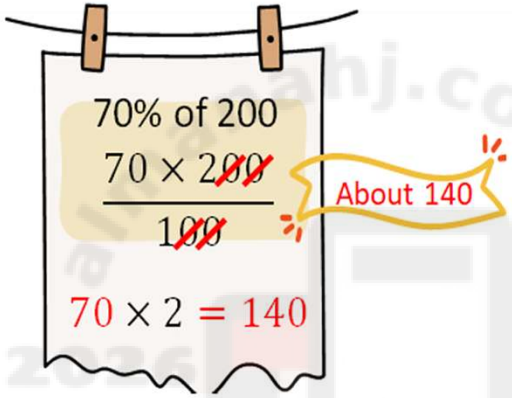
Question 13: Estimate the percent of a number by using benchmark percents and rounding

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?

Estimate for 77% of $ 288

75% of 300

$\frac{75}{100} \times 300$

$= \frac{75 \times 300}{100} \approx 225$

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?

Estimate for 64% of $ 161

65% of 160

$\frac{65}{100} \times 160$

$= \frac{65 \times 160}{100} \approx 104$

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%

about 125 students; 25% of 500 = 125

Test Practice

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?

About 60 subscriptions

28 % of 207 ~ 30% of 200 = $\frac{30}{100}$ x 200 = 60

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

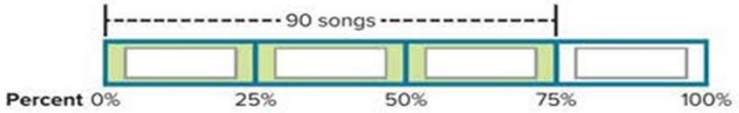
Example 1 Find the Whole

Country music makes up 75% of Landon's music library.

If he has downloaded 90 country music songs, how many songs does Landon have in his music library?

The part is 90 country music songs. The percent is 75%. The whole, the number of songs he has in his library, is the unknown.

Method 1 Use a bar diagram.
Draw a bar diagram with 4 equal-size sections of 25% each. Shade 3 sections to represent 75%. Label the shaded sections as 90 songs.



How many songs are represented by each section? _____

Label each section on the bar diagram.

How many songs are represented by the whole? _____

Method 2 Use equivalent ratios.
Let w represent the whole.

part → $\frac{90}{w} = \frac{75}{100}$ ← percent

$\frac{90}{w} = \frac{3}{4}$ Simplify $\frac{75}{100}$ as $\frac{3}{4}$.

$\times 30$

$\frac{90}{120} = \frac{3}{4}$ Because $3 \times 30 = 90$, multiply 4 by 30 to obtain 120. So, $w = 120$.

$\times 30$

So, using either method, Landon has _____ songs in his music library.

Use any strategy to solve each problem. (Examples 1 and 2)

1. Yolanda'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?

80% of a = 20

$\frac{80}{100} \times a = 20$

$80 \times a = 20 \times 100$

$A = \frac{20 \times 100}{80} = \frac{2000}{80}$ = 25 members

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?

25% of a = 16

$\frac{25}{100} \times a = 16$

$25 \times a = 16 \times 100$

$a = \frac{16 \times 100}{25} = \frac{1600}{25}$ = 64 DVDs

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**

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?

40% of a = $10

$\frac{40}{100}$ x a = 10

40 x a = 10 x 100

a = $\frac{10 \times 100}{40}$ = $25

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?

55% of a = 110

$\frac{55}{100}$ x a = 110

55 x a = 100 x 110

a = $\frac{100 \times 110}{55}$ = 200 students

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?

24% of a = 96

$\frac{24}{100}$ x a = 96

24 x a = 96 x 100

a = $\frac{96 \times 100}{24}$ = 400 pictures

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

20% of a = $12

$\frac{20}{100}$ x a = 12

20 x a = 12 x 100

a = $\frac{12 \times 100}{20}$ = $60

Question 15: Solve problems by using the standard algorithms for addition, subtraction, **Page:153**

Find each sum.

1. 34.672 + 15.31 =

$$\begin{array}{r} 34.672 \\ +\ 15.310 \\ \hline 49.982 \end{array}$$

2. 152.875 + 35.4]

$$\begin{array}{r} {\scriptstyle 1} \\ 152.875 \\ +\ 35.400 \\ \hline 188.275 \end{array}$$

Find each difference.

3. 139.65 – 59.623 =

$$\begin{array}{r} {\scriptstyle 14\ 10} \\ 139.650 \\ -\ 59.623 \\ \hline 80.027 \end{array}$$

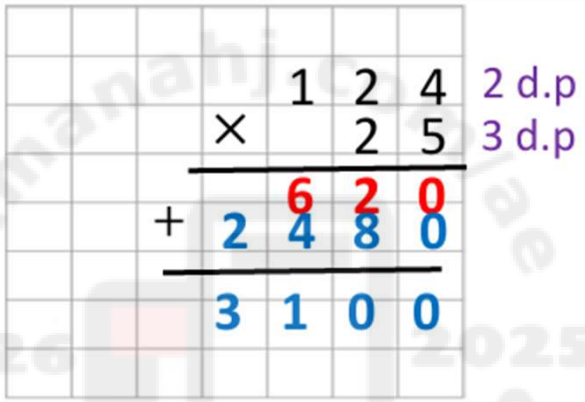
4. 352.37 – 231.975 =

$$\begin{array}{r} 352.370 \\ -\ 231.975 \\ \hline 120.395 \end{array}$$

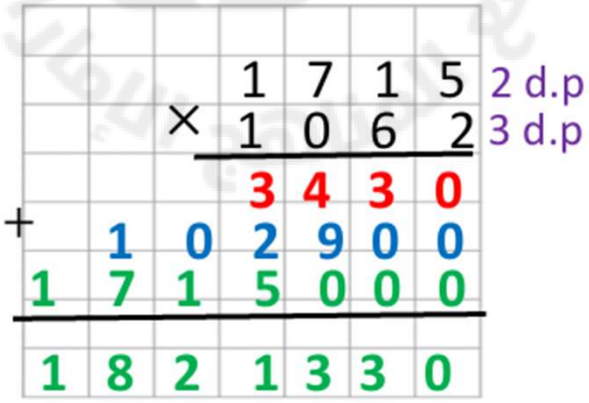
Question 16: Solve problems by using the standard algorithms for addition, subtraction, multiplication, and division to compute with multi-digit decimals **Page:153**

Find each product.

5. 0.025 x 1.24 = **0.03100** 5 d.p



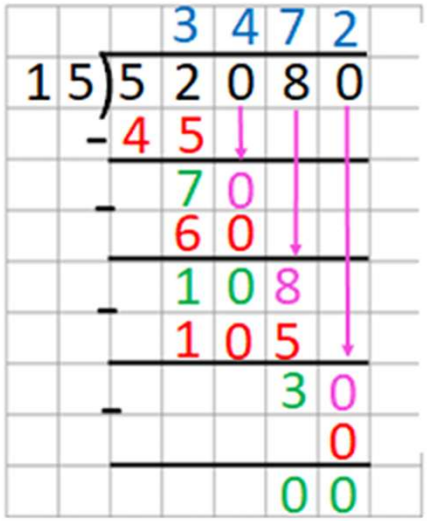
6. 17.15 x 1.062 = **18.213 3 0** 5 d.p



Question 17: Use the standard algorithm to divide multi-digit numbers when solving **Page:141**

Find each quotient.

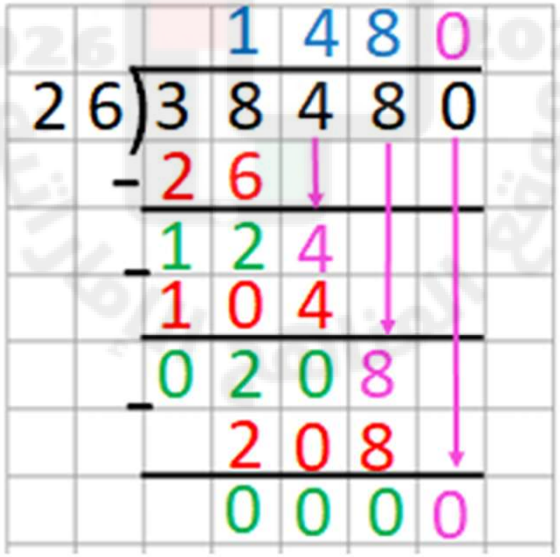
1. 52,080 ÷ 15 =



15 x 1 = 15
15 x 2 = 30
15 x 3 = 45
15 x 4 = 60
15 x 5 = 75
15 x 6 = 90
15 x 7 = 105

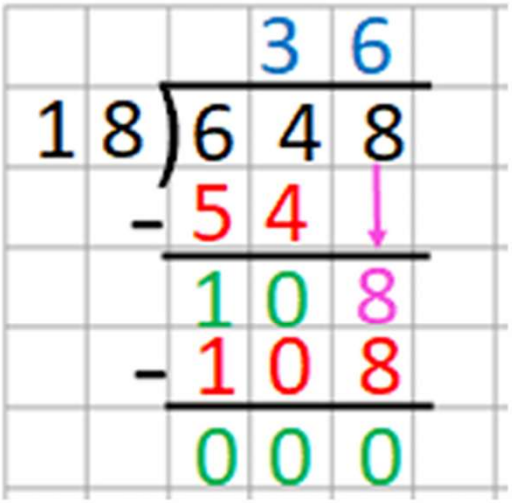
2. 38,480 ÷ 26 =

26 × 1	26 × 2	26 × 3	26 × 4	26 × 5	26 × 6	26 × 7	26 × 8
26	52	78	104	130	156	182	208



3. 648 ÷ 18 =

18 × 1	18 × 2	18 × 3	18 × 4	18 × 5	18 × 6
18	36	54	72	90	108



Question 17: Use the standard algorithm to divide multi-digit numbers when solving problems **Page:141**

4. 3,409 ÷ 14 =

14 × 1	14 × 2	14 × 3	14 × 4	14 × 5
14	28	42	56	70

With Remainders

```
      2 4 3  R 7
14 ) 3 4 0 9
   - 2 8
     0 6 0
   -   5 6
       0 4 9
   -     4 2
         0 7
```

Annexing Zeros

```
      2 4 3 • 5
14 ) 3 4 0 9 0
   - 2 8
     0 6 0
   -   5 6
       0 4 9
   -     4 2
         0 7 0
   -       7 0
           0 0
```

5. 8,890 ÷ 40 =

40 × 1	40 × 2	40 × 3	40 × 4	40 × 5
40	80	120	160	200

With Remainders

```
      2 2 2  R 10
40 ) 8 8 9 0
   - 8 0
     0 8 9
   -   8 0
       0 9 0
   -     8 0
         1 0
```

Annexing Zeros

```
      2 2 2 • 2 5
40 ) 8 8 9 0 0 0
   - 8 0
     0 8 9
   -   8 0
       0 9 0
   -     8 0
         1 0 0
   -       8 0
           2 0 0
   -       2 0 0
           0 0 0
```

6. 3,120 ÷ 64 =

64 × 1	64 × 2	64 × 3	64 × 4	64 × 5
64	128	192	256	320

64 × 6	64 × 7	64 × 8
384	448	512

With Remainders

```
      4 8  R 48
64 ) 3 1 2 0
   - 2 5 6
     0 5 6 0
   -   5 1 2
       0 4 8
```

Annexing Zeros

```
      4 8 • 7 5
40 ) 3 1 2 0 0 0
   - 2 5 6
     0 5 6 0
   -   5 1 2
       0 4 8 0
   -     4 4 8
         0 3 2 0
   -       3 2 0
           0 0 0
```

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

Page:141

7. 6,750 ÷ 240 = _____

```
       28.125
      ________
240 | 6750.000
     -480
     -----
      1950
     -1920
     -----
       300
      -240
      -----
       600
      -480
      -----
       120
     - 120
     -----
         0
```

8. 4,415 ÷ 800 = _____

```
      5.51875
     ________
800 | 4415.00000
     -4000
     -----
      4150
     -4000
     -----
      1500
     -800
     -----
      7000
     -6400
     -----
       6000
     -5600
     -----
        4000
     -4000
     -----
           0
```

9. 5,777 ÷ 160 = _____

```
          36.10625
        ____________
160 | 5777.00000
      -480
      -----
       977
      -960
      -----
        170
      -160
      -----
         100
       -  0
       -----
        1000
       -960
       -----
         400
       -320
       -----
          800
       - 800
       -----
            0
```

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

Divide. Write in simplest form.

6. $3 \div \frac{1}{4} =$ $\frac{3}{1} \times \frac{4}{1} = \frac{12}{1} = 12$	7. $4 \div \frac{2}{5} =$ $\frac{4}{1} \times \frac{5}{2} = \frac{20}{2} = 10$	8. $6 \div \frac{2}{3} =$ $\frac{6}{1} \times \frac{3}{2} = \frac{18}{2} = 9$

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

$$\frac{7}{1} \times \frac{8}{5} = \frac{56}{5} = 11\frac{1}{5}$$

$11\frac{1}{5}$; Marie can make $11\frac{1}{5}$ scarves or 11 whole scarves.

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.

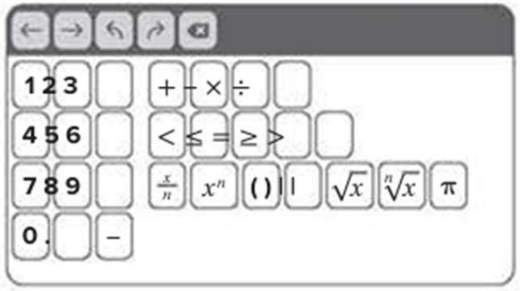
$$2 \div \frac{3}{5} = 2 \times \frac{5}{3} = \frac{10}{3} = 3\frac{1}{3}$$

Roberto can play $3\frac{1}{3}$ mini matches

Test Practice

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

$$15 \div \frac{5}{9} = 15 \times \frac{9}{5} = 27$$



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

Divide. Write in simplest form.

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

$\frac{5}{12} = \frac{12}{5}$

$\frac{5}{6} \times \frac{12}{5} = 2$ (6 × 2)

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

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

$\frac{1}{3} \times \frac{9}{1} = 3$ (3 × 3)

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

$\frac{1}{14} = \frac{14}{1}$

$\frac{3}{7} \times \frac{14}{1} = \frac{6}{1} = 6$ (7 × 2)

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.

1 $\frac{3}{4} \div \frac{5}{16} =$

2 $\frac{3}{4} \times \frac{16}{5} = \frac{12}{5} = 2\frac{2}{5}$ (4 × 4)

Romeo can make 2 whole bags.

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.

$\frac{7}{8} \div \frac{1}{4} =$

$\frac{7}{8} \times \frac{4}{1} = \frac{7}{2} = 3\frac{1}{2}$ (4 × 2)

Chelsea can make 3 whole batches of icing

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

A nature trail is $\frac{5}{6}$ mile long. There are information markers every $\frac{1}{6}$ mile. How many information markers are there?

5 markers

Test Practice

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

$\frac{2}{5} \div \frac{1}{6} = \frac{2}{5} \times \frac{6}{1} = \frac{12}{5} = 2\frac{2}{5}$

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. (Example 1)

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

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

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. (Example 1)

$\frac{4}{5} \div 8 =$

$\frac{\cancel{4}}{5} \times \frac{1}{\cancel{8}_{2 \times \cancel{4}}} = \frac{1}{10}$ ton

Divide. Write in simplest form. (Examples 2 and 3)

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

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

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

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

$$\frac{14}{5} \times \frac{1}{4} = \frac{\overset{\cancel{2} \times 7}{14}}{\underset{\cancel{2} \times 10}{20}} = \frac{7}{10}$$

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

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

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

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. (Example 1)

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

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

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. (Example 1)

$\frac{4}{5} \div 8 =$

$\frac{\cancel{4}}{5} \times \frac{1}{\cancel{8}_{2 \times \cancel{4}}} = \frac{1}{10}$ ton

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

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

$$\frac{14}{5} \times \frac{1}{4} = \frac{\cancel{2 \times 7}\ 14}{\cancel{2 \times 10}\ 20} = \frac{7}{10}$$

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

$$\frac{6 \times 3 + 2}{3} \times \frac{1}{8}$$

$$\frac{20}{3} \times \frac{1}{8} = \frac{\cancel{4 \times 5}\ 20}{\cancel{4 \times 6}\ 24} = \frac{5}{6}$$

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

$$\frac{4\ X\ 3+2}{3} \times \frac{1}{6} = \frac{14}{3} \times \frac{1}{6} = \frac{14}{18} = \frac{7}{9}$$

FRQ: Question 21: Represent a collection of equivalent ratios

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Example 1 Scale Forward to Find Equivalent Ratios

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?

Step 1 Create a ratio table with the given information.

For every 6 drops of yellow food coloring, there are 2 cups of icing. The unknown is the number of drops of yellow needed to mix with 8 cups of icing.

Drops of Yellow	6	?
Cups of Icing	2	8

Step 2 Scale forward to find how many drops of yellow Amida needs to mix with 8 cups of icing.

Drops of Yellow	6	24
Cups of Icing	2	8

×4 (above) ×4 (below)

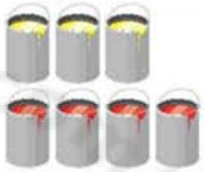
Because 2 × _____ = 8, multiply 6 by _____ to obtain 24.

The ratios 6 : 2 and 24 : 8 are equivalent ratios.

So, Amida should mix _____ drops of yellow food coloring with 8 cups of white icing to get the same shade of yellow.

Example 2 Scale Backward to Find Equivalent Ratios

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?

Step 1 Create a ratio table with the given information.

For every 3 containers of yellow paint, there are 4 containers of red paint. The unknown is the amount of yellow paint needed to mix with 2 containers of red paint.

Yellow Paint (containers)	?	3
Red Paint (containers)	2	4

Step 2 Scale backward to find the equivalent ratio.

Yellow Paint (containers)	1.5	3
Red Paint (containers)	2	4

÷2 (above) ÷2 (below)

Because 4 ÷ 2 = 2, divide 3 by _____ to obtain _____.

The ratios 1.5 to 2 and 3 to 4 are equivalent.

So, Aiko should mix _____ containers of yellow paint with 2 containers of red paint to create the same shade of orange paint.

Example 3 Scale in Both Directions

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?

Step 1 Create a ratio table with the given information.

For every 9 fluid ounces of fruit punch, there are 6 scoops of raspberry ice cream. The unknown is the amount of ice cream needed to mix with 6 fluid ounces of fruit punch.

Fruit Punch (fl oz)	6	9
Ice Cream (scoops)	?	6

There is no whole number by which you can multiply 6 to obtain a product of 9.

Step 2 Scale backward to find an equivalent ratio.

Fruit Punch (fl oz)	3	6	9
Ice Cream (scoops)	2	?	6

÷3 (above) ÷3 (below)

To scale back, you can divide both 9 and 6 by 3. This results in the equivalent ratio 3 : 2.

Step 3 Use the equivalent ratio you found to scale forward to find the desired equivalent ratio.

Fruit Punch (fl oz)	3	6	9
Ice Cream (scoops)	2	4	6

×2 (above) ×2 (below)

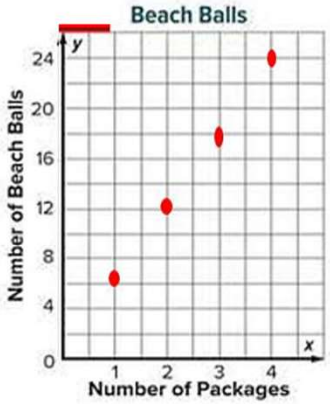
To scale forward, you can multiply both 3 and 2 by 2. This results in the equivalent ratio 6 : 4.

So, Natasha should mix _____ scoops of raspberry ice cream with the remaining 6 fluid ounces of fruit punch.

FRQ: Question 22: Graph a ratio relationship on the coordinate plane

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 bays 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.

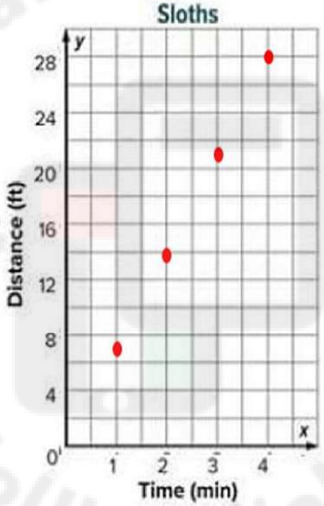
X	1	2	3	4
Y	6	12	18	24



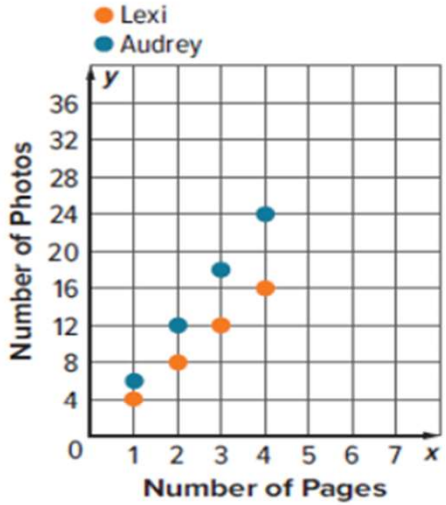
2. A sloth travels about 7 feet every minute. Generate the set of ordered pairs for the ratio relationship between the total distance traveled y and the number of minutes x for a total of 1,2,3, and for minutes. Then graph the relationship on the coordinate plane and describe the pattern in the graph.

X	1	2	3	4
Y	7	14	21	28

(1,7), (2,14), (3,21), (4,28),



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.



The ratio of photos to pages for Lexi scrapbook is 4 : 1. The ratio of photos to pages for Audrey scrapbook is 6 : 1. So, Audrey uses more photos per page than Lexi.

FRQ: Question 22: Graph a ratio relationship on the coordinate plane

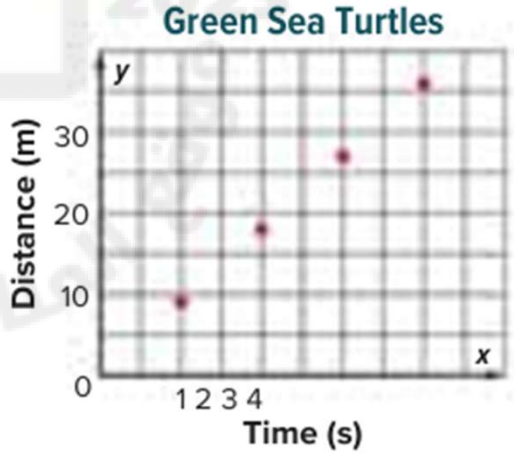
7. MP **Reason Abstractly** The table gives the number of beads needed to make bracelets of certain lengths. Suppose you graph the ordered pairs (bracelet length, number of beads) on the coordinate plane. Would the point (10.5, 42) make sense in this context? Explain.

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

yes; Sample answer: A bracelet could have a length of 10.5 inches and 42 beads.

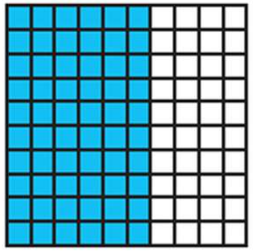
8. Multiple Relationships For every second, the average green sea turtle can swim 9 meters. Represent how far a green sea turtle can swim in 1, 2, 3 and 4 seconds in a table. Then graph the points on a coordinate plane.

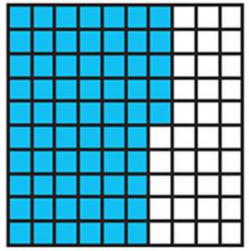
Time (s)	1	2	3	4
Distance (m)	9	18	27	36



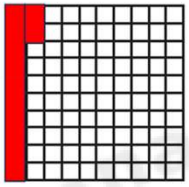
FRQ: Question 23: Model percents using 10 x 10 grids and bar diagrams.

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

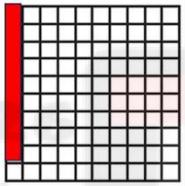
1.  60%

2.  65%

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



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



For Exercises 5 and 6, identify the percent represented by each bar diagram.

5. 90%

6. 85%

7. Shade the bar diagram to model 25%.

FRQ: Question 24: Find the whole, given the part and the percent by using bar diagrams, ratio tables, double number lines, and equivalent ratios

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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?

35% of a = 245

$\frac{35}{100}$ x a = 245

a = $\frac{245 \times 100}{35}$ = 700 students

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

Cheese pizza + pepperoni pizza = 50 + 40 = 90%

90% of a = 270

$\frac{90}{100}$ x a = 270

a = $\frac{270 \times 100}{90}$ =300 lunches

Cost = 300 x $3.50 = $1050

FRQ: Question 25: Solve problems by using the standard algorithms for addition, subtraction, multiplication, and division to compute with multi-digit

Find each difference.

3. 139.65 – 59.623 =

					14	10	
	1	3	9	. 6	5	0	
−		5	9	. 6	2	3	
		8	0	. 0	2	7	

4. 352.37 – 231.975 =

		3	5	2 . 3	7	0	
−		2	3	1 . 9	7	5	
		1	2	0 . 3	9	5	

Find each quotient.

7. 32.674 ÷ 0.016 =

3 d.p 3 d.p

32674 ÷ 16 =

16 × 1	16 × 2	16 × 3	16 × 4	16 × 5
16	32	48	64	80

8. 3.825 ÷ 0.25 =

3 d.p 2 d.p

382.5 ÷ 25 =

25 × 1	25 × 2	25 × 3	25 × 4	25 × 5	25 × 6
25	50	75	100	125	150