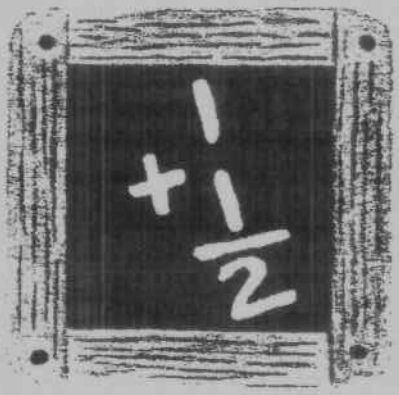
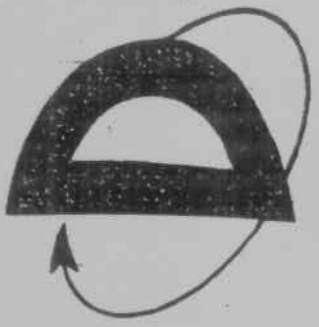
NAME: _____

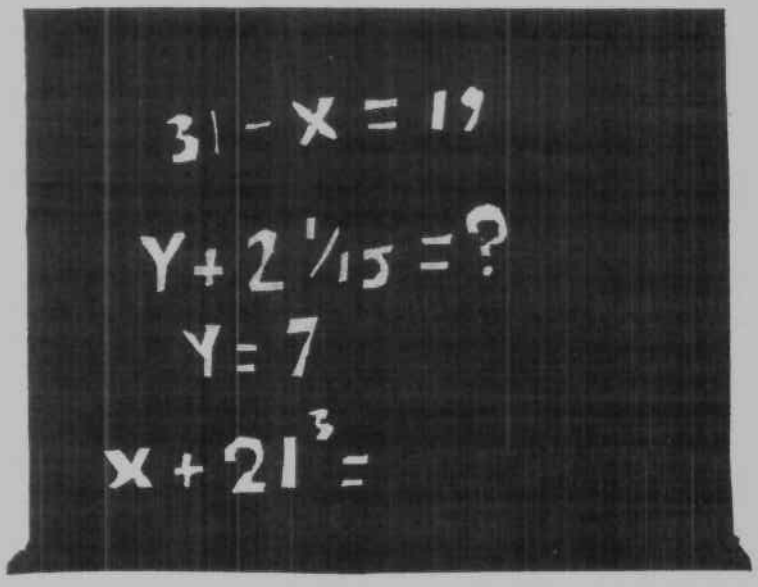
Super Understanding of Mathematics Magnifies Everything Reviewed in school





Fifth Grade

Garrett Park E.S.



MATH ACTIVITIES YOU CAN DO AT HOME

The bold words at the beginning of each activity indicate the focus or skilled covered.

1. **ESTIMATE:** Children practice estimation in real life situations and explain how they came to that conclusion.

For Example:

- Have your child estimate the cost of a few items when you go to the supermarket.
- Have your child estimate how long (miles) and/or the time it will take to get to a certain destination when traveling.
- Estimate how much the bill might be at a restaurant.
- Estimate how much it will cost to fill the car with gasoline.

2. **PERFORMING A TASK:**

For Example:

- Cook with your children. Ask them to read the recipe, measure out the out the ingredients and follow all the instructions. Ask them to restate the procedure in their own words. * As a challenge have them calculate the portions of each ingredient for doubling or tripling a recipe.
- Play board games with your children. Have them read the directions and explain how to play the game.
- Talk to your child about the sequence of events of their day. They should be able to explain events using detail and support any conclusions about what has happened. Can they use vocabulary specific to the topic when speaking?

3. **DECISION-MAKING, MAKING CHANGE, EXPLAINING THINKING:** Children must make decisions, this is an opportunity for your child to explain their thinking - why they chose that strategy or solution.

For Example:

- While playing games involving money, have your children be the "banker" and use addition and subtraction strategies for giving change.
- Pay a cashier the proper amount of money that is owed or count change from a purchase.
- Ask your child to budget the cost for your family for an activity based on the fare or fee for one person.

4. **INTREPRETING DATA:** Have your child scan the newspaper for charts, tables, and graphs. Ask your child to interpret these data displays and identify the important elements of them. Ask questions related to the charts, tables, and graphs.

5. **TIME** – Students should tell time using a clock with hands. Review with them certain times of the day – getting up, meals, going to bed. Also, refer to morning and evening times (A.M. and P.M.). Also, refer to the days of the week and the months of the year, using a calendar.

Other activities:

- Determine the amount of time taken to complete certain activities over the course of several days, a week, or a month.
- When planning a family activity, ask your child how much time will be needed to do an activity – what time will it start and finish.
- Ask about the amount of time for cooking/baking foods.
- Calculate how many days, hours, minutes, and even seconds old a person is.

6. **CONNECTIONS TO REAL LIFE EXPERIENCES:** Applying math concepts in real life experiences. This will make math more meaningful to your child if they see how the skills and concepts they have learned in class can be applied outside the classroom.

For Example:

- Use of fractions – in cooking, find them in the newspaper
- Measurement – use a measuring tape or rule to measure different objects around your home.
- Identify examples of different shapes in your home and your surroundings – circle, square, rectangle, triangle, sphere, cylinder, cube, etc.
- Identify examples of horizontal, vertical, parallel, intersecting, and perpendicular lines (example – telephone wires and streets)
- Figure out the tax to add on the purchase of items or food.

7. PROBLEM SOLVE: Managing multi-step problems. Is your answer correct and thorough? Is your child using math vocabulary to solve the problems? Can they answer questions that begin "How to…? "When do you…? What operation do you use and why?

8. BASIC MATH FACTS AND COMPUTATION SKILLS: Practice math facts with your child. They can make flash cards and practice just a few minutes a day.

9. WEBSITES TO EXPLORE:
For basic facts:
Multiplication.com
http://oswego.org/ocsd-web/games/mathmagician/cathymath.html

http://www.factmonster.com/math/flashcards.html

www.Funbrain.com

www.Coolmath.com.

www.Aaastudy.com

www.Aplusmath.com

www.Kidsites.com

Name _____

Multiples of 10, 100, and 1,000

These examples show how to multiply by **10**, **100**, or **1,000**.

$$\begin{array}{r} 28 \\ \times\ 10 \\ \hline 280 \end{array}$$ ← 1 zero

Multiplying **28 × 10** is the same as multiplying **28 × 1** and writing one **0** in the product.

$$\begin{array}{r} 28 \\ \times\ 100 \\ \hline 2{,}800 \end{array}$$ ← 2 zeros

Multiplying **28 × 100** is the same as multiplying **28 × 1** and writing two **0s** in the product.

$$\begin{array}{r} 28 \\ \times\ 1{,}000 \\ \hline 28{,}000 \end{array}$$ ← 3 zeros

Multiplying **28 × 1,000** is the same as multiplying **28 × 1** and writing three **0s** in the product.

To multiply a number by **10**, **100**, or **1,000**, write as many zeros in the product as there are in **10**, **100**, or **1,000**.

Multiply.

1.	45 × 10	45 × 100	45 × 1,000	77 × 10	77 × 100	77 × 1,000
2.	823 × 10	823 × 100	823 × 1,000	961 × 10	961 × 100	961 × 1,000
3.	4 × 1,000	7 × 10	2 × 100	64 × 10	275 × 1,000	3193 × 100

Circle the greater product.

4. 36 × 10 or 4 × 100
73 × 10 or 6 × 100
372 × 10 or 41 × 100

5. 804 × 10 or 79 × 100
57 × 100 or 6 × 1,000
26 × 100 or 2 × 1,000

6. 60 × 10 or 5 × 100
800 × 10 or 90 × 100
70 × 100 or 6 × 1,000

7. 47 × 10 or 5 × 100
62 × 100 or 605 × 10
99 × 10 or 10 × 100

8. 702 × 10 or 70 × 100
17 × 1,000 or 105 × 100
76 × 100 or 709 × 10

9. 10 × 1,000 or 100 × 90
906 × 10 or 9 × 1,000
43 × 1,000 or 50 × 100

Name _____

Multiplying by Two-Digit Numbers

This example shows how to multiply **643** by **35**.

1. Multiply by the ones digit.

```
 2 1
 643
×35
3215   ← 5 × 643
```

Remember to regroup.

2. Multiply by the tens digit.

```
  1
 643
×35
3215
19290  ← 30 × 643
```

Remember to regroup.

You do not have to write the zero. Start the answer in the tens place.

3. Add the partial products.

```
  643
×35
3215
+1929
22,505
```

Multiply.

1.	404 × 83	567 × 42	390 × 56	770 × 35	371 × 50
2.	408 × 62	573 × 44	608 × 55	725 × 68	937 × 46
3.	685 × 24	393 × 37	408 × 67	380 × 54	609 × 58
4.	75 × 84	29 × 36	47 × 18	630 × 49	504 × 35	480 × 17
5.	158 × 31	296 × 45	342 × 62	506 × 51	821 × 78	142 × 46

Name _____

Multiplying with Zeros

Sometimes factors contain one or more zeros.

```
  643
× 201
  643
12860
129,243
```

Write zero in the partial product to show 0 tens. Then multiply by hundreds.

```
  376
× 240
15040
+ 752
90,240
```

Write zero in the partial product to show 0 ones. Then multiply by tens.

Multiply.

1.	729 × 603	694 × 630	428 × 702	376 × 240	865 × 409
2.	421 × 402	615 × 109	726 × 305	843 × 206	908 × 406
3.	662 × 470	753 × 360	835 × 290	444 × 130	633 × 520
4.	842 × 460	953 × 320	657 × 590	570 × 260	398 × 180
5.	3,007 × 717	5,600 × 906	9,080 × 652	4,770 × 530	1,919 × 381

MULTIPLYING BY 2-DIGIT NUMBERS

Multiply.

1. 52 × 23 = 156 + 1,040 = 1,196

2. 39 × 15

3. 44 × 60

4. 63 × 25

5. 19 × 15

6. 18 × 60

7. 49 × 32

8. 22 × 30

9. 51 × 23

10. $68 × 29

Multiply.

1. 27 / 129 × 18 = 1,032 + 1,290 = 2,322

2. 238 × 12

3. 392 × 34

4. $402 × 93

5. $6.07 × 59

6. 440 × 67

7. $3.90 × 30

8. 593 × 25

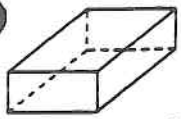
Faces, Edges, Vertices
More Practice

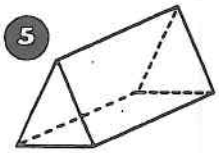
Skill

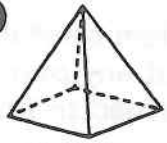
Complete. Use *faces*, *edges*, or *vertex*.

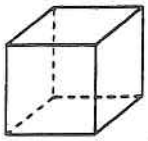
1. A(n) _____ on a solid figure is where two faces meet.
2. A(n) _____ is a corner where 3 or more faces meet.
3. A(n) _____ is a flat surface on a solid figure.

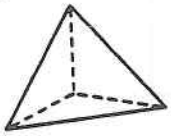
Write the number of faces, edges, or vertices.

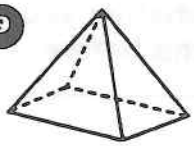
4. 
Rectangular Prism
Faces ___
Edges ___
Vertices ___

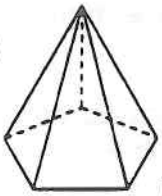
5. 
Triangular Prism
Faces ___
Edges ___
Vertices ___

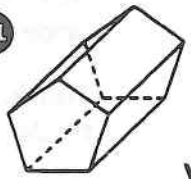
6. 
Square Pyramid
Faces ___
Edges ___
Vertices ___

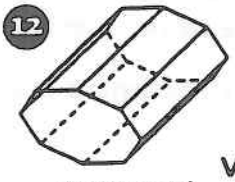
7. 
Cube
Faces ___
Edges ___
Vertices ___

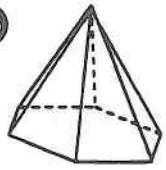
8. 
Triangular Pyramid
Faces ___
Edges ___
Vertices ___

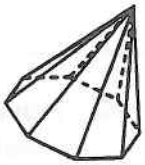
9. 
Rectangular Pyramid
Faces ___
Edges ___
Vertices ___

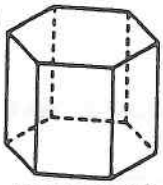
10. 
Pentagonal Pyramid
Faces ___
Edges ___
Vertices ___

11. 
Pentagonal Prism
Faces ___
Edges ___
Vertices ___

12. 
Octagonal Prism
Faces ___
Edges ___
Vertices ___

13. 
Hexagonal Pyramid
Faces ___
Edges ___
Vertices ___

14. 
Octagonal Pyramid
Faces ___
Edges ___
Vertices ___

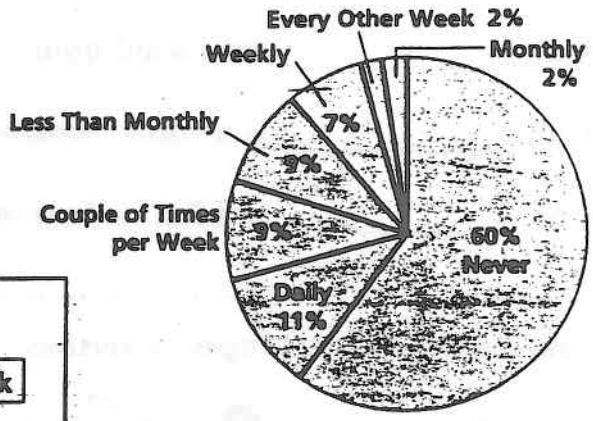
15. 
Hexagonal Prism
Faces ___
Edges ___
Vertices ___

Problem Solving Application: Use a Circle Graph

This circle graph shows the results of a survey of how often people correspond with family and friends by e-mail. There were 800 people in the survey.

In this lesson, you will use the graph to compare or draw conclusions about data in the graph.

Survey: How often do you use e-mail to correspond with friends and family?



Tips to Remember

1. Understand 2. Decide 3. Solve 4. Look back

- Read the problem carefully. Ask yourself questions about any part that does not make sense. Reread to find answers.
- Compare the labels on the graph with the words and numbers in the problem. Find the facts you need from the graph.
- Ask yourself whether you have solved a problem like this before.

Solve.

1. Is it true that more than half the people have never used e-mail?

Think: What percent is the same as half?

_____

Answer _____

2. How many people use e-mail at least once a week?

Think: What operations do you need to do to solve this problem?

_____

Answer _____

3. How many people never use e-mail?

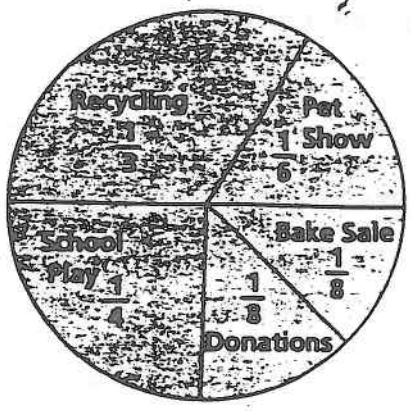
_____

4. How many more people use e-mail weekly than monthly?

_____

This circle graph shows how the students of the Hancock School raised money to buy a new computer. The total amount raised was $1,200.

How Money Was Raised by Students of Hancock School



Solve.

5. How was the greatest amount of money raised? How much was raised this way?

6. Which three ways of raising money for the new computer are together equivalent to 75% of the money raised?

7. How much more money was raised from the school play than from the bake sale?

8. How much money was raised from the pet show and donations?

9. How much money was raised without donations?

10. Which single event represents 25% of the money raised?

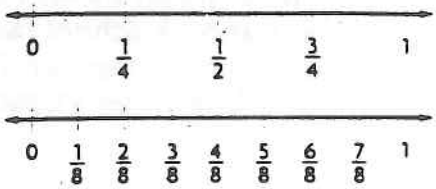
Extend Your Thinking

11. A circle has 360°. How many degrees are in the Pet Show part of the circle graph?

12. Look back at problem 6. Explain the method you used to solve the problem.

Equivalent Fractions

Use the number lines to name an equivalent fraction for each.



1. $\frac{1}{4}$ _____ 2. $\frac{4}{8}$ _____ 3. $\frac{3}{4}$ _____

Write an equivalent fraction. Use multiplication or division.

4. $\frac{2}{4}$ _____ 5. $\frac{18}{20}$ _____ 6. $\frac{3}{8}$ _____ 7. $\frac{7}{21}$ _____

8. $\frac{3}{5}$ _____ 9. $\frac{2}{15}$ _____ 10. $\frac{8}{12}$ _____ 11. $\frac{10}{16}$ _____

Which fraction is *not* equivalent to the given fraction? Circle *a*, *b*, or *c*.

12. $\frac{2}{3}$ a. $\frac{6}{9}$ b. $\frac{5}{6}$ c. $\frac{8}{12}$ 13. $\frac{9}{15}$ a. $\frac{3}{5}$ b. $\frac{18}{30}$ c. $\frac{16}{25}$

14. $\frac{6}{8}$ a. $\frac{10}{12}$ b. $\frac{3}{4}$ c. $\frac{24}{32}$ 15. $\frac{3}{7}$ a. $\frac{6}{14}$ b. $\frac{14}{28}$ c. $\frac{21}{49}$

Add and Subtract Like Fractions

Find the sum or difference. Write it in simplest form.

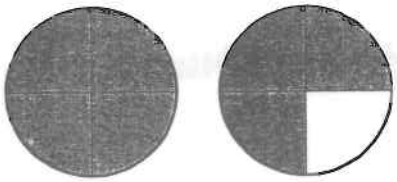
1. $\frac{5}{7} + \frac{1}{7}$ _____ 2. $\frac{4}{9} + \frac{3}{9}$ _____ 3. $\frac{4}{12} + \frac{8}{12}$ _____ 4. $\frac{3}{11} + \frac{7}{11}$ _____

5. $\frac{2}{8} + \frac{4}{8}$ _____ 6. $\frac{7}{15} + \frac{4}{15}$ _____ 7. $\frac{5}{9} + \frac{1}{9}$ _____ 8. $\frac{1}{4} + \frac{2}{4}$ _____

9. $\frac{4}{7} - \frac{2}{7}$ _____ 10. $\frac{3}{5} - \frac{1}{5}$ _____ 11. $\frac{6}{12} - \frac{2}{12}$ _____ 12. $\frac{3}{4} - \frac{2}{4}$ _____

13. $\frac{7}{9} - \frac{2}{9}$ _____ 14. $\frac{4}{6} - \frac{1}{6}$ _____ 15. $\frac{3}{8} - \frac{2}{8}$ _____ 16. $\frac{9}{10} - \frac{5}{10}$ _____

A **mixed number** is made up of a whole number and a fraction. $1\frac{3}{4}$



To write a mixed number as a fraction, follow these steps.

1. Multiply the whole number by the denominator.
2. Add the numerator to the product.
3. Write the sum over the denominator.

Write $4\frac{1}{2}$ as a fraction.

2×4

$8 + 1$

$\frac{9}{2}$ So, $4\frac{1}{2} = \frac{9}{2}$.

To write a fraction as a mixed number, divide. Write the remainder over the denominator.

Write $\frac{14}{5}$ as a mixed number

$14 \div 5 = 2\frac{4}{5}$

Write each mixed number as a fraction and write each fraction as a mixed number.

5. $2\frac{1}{4}$ _____ $\frac{7}{2}$ _____ $1\frac{3}{8}$ _____ $\frac{10}{3}$ _____

6. $\frac{12}{5}$ _____ $3\frac{1}{16}$ _____ $\frac{17}{9}$ _____ $4\frac{9}{10}$ _____

Problem Solving Reasoning Solve.

7. After every $\frac{1}{3}$ mile of a nature trail, there is a place to rest. How many places to rest are there on a trail that is $1\frac{2}{3}$ mile long?

_____

_____

Test Prep ★ Mixed Review

8. **What is the best estimate of the quotient $2{,}483 \div 25$?**

A 1

B 10

C 100

D 1,000

9. **$90 = 2 \times 3^2 \times 5$. Which statement is also true?**

F 90 is a multiple of 20

G 90 is divisible by 12

H 10 is a factor of 90

J 4×10 is a factor of 90

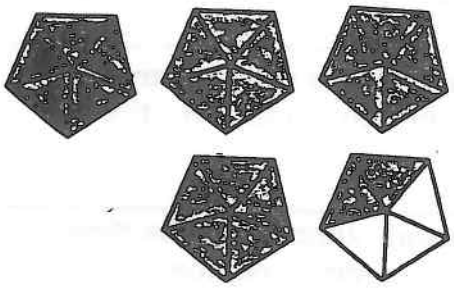
Understand Mixed Numbers

Vocabulary

Complete.

1. A mixed number is made up of a whole number and a fraction.

For 2–5, use the figures at the right.



2. How many whole figures are shaded?

_____

3. Into how many parts is each figure divided?

_____

4. How many parts of the last figure are shaded?

_____

5. Write a fraction and a mixed number for the figures.

_____

Write each fraction as a mixed number.

6. $\frac{22}{7}$ _____ 7. $\frac{7}{5}$ _____ 8. $\frac{19}{4}$ _____ 9. $\frac{13}{2}$ _____

Write each mixed number as a fraction.

10. $4\frac{2}{3}$ _____ 11. $1\frac{4}{6}$ _____ 12. $3\frac{2}{5}$ _____ 13. $2\frac{2}{4}$ _____

Mixed Review

14. Sam watched 10 cars drive past him. Of those cars, 6 were white. Write a fraction to describe the fraction of white cars.

_____

15. Maria takes 6 classes. In 5 of those classes, she has an A. Write a fraction to describe the fraction of classes in which she has an A.

_____

To add two mixed numbers, follow these steps: $3\frac{5}{8} + 4\frac{1}{8}$

Add the fractions.	Add the whole numbers.	Simplify if possible.
$3\frac{5}{8}$ $+ 4\frac{1}{8}$ $\frac{6}{8}$	$3\frac{5}{8}$ $+ 4\frac{1}{8}$ $7\frac{6}{8}$	$3\frac{5}{8}$ $+ 4\frac{1}{8}$ $7\frac{6}{8} = 7\frac{3}{4}$ ← simplest form

Add. Write the sum in simplest form.

6. $5\frac{4}{9} + 1\frac{1}{9}$; $1\frac{3}{8} + 4\frac{1}{8}$; $5\frac{1}{7} + \frac{3}{7}$; $4\frac{1}{3} + 1\frac{1}{3}$; $3\frac{1}{4} + \frac{2}{4}$; $1\frac{7}{8} + 3$

7. $7\frac{1}{5} + \frac{3}{5}$; $6\frac{1}{9} + 1\frac{2}{9}$; $3\frac{1}{7} + 1\frac{1}{7}$; $\frac{5}{8} + \frac{2}{8}$; $3\frac{1}{3} + \frac{1}{3}$; $2\frac{3}{5} + 4\frac{0}{5}$

Problem Solving Reasoning Solve.

8. Bike Trail A is $4\frac{9}{10}$ miles long, Trail B is $3\frac{3}{4}$ miles long, and Trail C is $5\frac{5}{8}$ miles long. Which two trails should Derrick ride if he wants to ride between 9 and 10 miles?

_____

Test Prep ★ Mixed Review

9. **Which fractions are in order from least to greatest?**

A $\frac{2}{3}, \frac{9}{12}, \frac{1}{2}, \frac{5}{6}$

B $\frac{1}{2}, \frac{2}{3}, \frac{9}{12}, \frac{5}{6}$

C $\frac{1}{2}, \frac{9}{12}, \frac{2}{3}, \frac{5}{6}$

D $\frac{9}{12}, \frac{2}{3}, \frac{1}{2}, \frac{5}{6}$

10. **12 is the GCF of which numbers?**

F 24 and 36

G 12 and 30

H 24 and 48

J 30 and 48

Name _____

Subtracting with Like Denominators

You can see that $\frac{7}{9}$ of the whole is shaded. What part of the whole is shaded red?

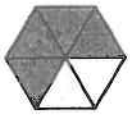
$\frac{7}{9}$ shaded $\frac{2}{9}$ shaded gray

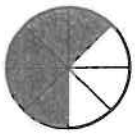
Think:
7 ninths
− 2 ninths
5 ninths

To solve this problem, you can subtract fractions with **like denominators:**

1. Subtract the numerators. $\frac{7}{9} - \frac{2}{9} = \frac{5}{9}$
2. Write the difference over the denominator. $\frac{5}{9}$ are shaded red.

Subtract. Use the shaded regions.





1. $\frac{4}{6} - \frac{3}{6} =$ _____ $\frac{5}{8} - \frac{2}{8} =$ _____ $\frac{7}{8} - \frac{6}{8} =$ _____

Subtract. Simplify your answer if possible.

2. $\frac{5}{6} - \frac{4}{6} =$ _____ $\frac{3}{5} - \frac{2}{5} =$ _____ $\frac{4}{8} - \frac{1}{8} =$ _____ $\frac{5}{9} - \frac{4}{9} =$ _____
3. $\frac{3}{8} - \frac{1}{8} =$ _____ $\frac{3}{4} - \frac{1}{4} =$ _____ $\frac{5}{8} - \frac{3}{8} =$ _____ $\frac{11}{16} - \frac{7}{16} =$ _____
4. $\frac{6}{7} - \frac{1}{7} =$ _____ $\frac{2}{3} - \frac{1}{3} =$ _____ $\frac{9}{10} - \frac{6}{10} =$ _____ $\frac{1}{4} - \frac{1}{4} =$ _____

5.

$\frac{5}{6}$	$\frac{11}{12}$	$\frac{3}{5}$	$\frac{4}{4}$	$\frac{7}{8}$	$\frac{6}{9}$
$-\frac{4}{6}$	$-\frac{1}{12}$	$-\frac{1}{5}$	$-\frac{1}{4}$	$-\frac{4}{8}$	$-\frac{2}{9}$
_____	_____	_____	_____	_____	_____

6.

$\frac{7}{8}$	$\frac{9}{10}$	$\frac{2}{3}$	$\frac{5}{7}$	$\frac{8}{9}$	$\frac{7}{12}$
$-\frac{1}{8}$	$-\frac{1}{10}$	$-\frac{2}{3}$	$-\frac{2}{7}$	$-\frac{4}{9}$	$-\frac{1}{12}$
_____	_____	_____	_____	_____	_____

To find the difference between two mixed numbers, such as $8\frac{5}{6} - 7\frac{1}{6}$, follow these steps:

Subtract the fractions.	Subtract the whole numbers.	Write the difference in simplest form.
$8\frac{5}{6}$	$8\frac{5}{6}$	$8\frac{5}{6}$
$-7\frac{1}{6}$	$-7\frac{1}{6}$	$-7\frac{1}{6}$
$\frac{4}{6}$	$1\frac{4}{6}$	$1\frac{4}{6} = 1\frac{2}{3}$ ← simplest form

Subtract. Write the difference in simplest form.

7.

$3\frac{7}{8}$	$9\frac{7}{10}$	$8\frac{4}{5}$	$7\frac{11}{12}$	$5\frac{6}{7}$	$6\frac{1}{2}$
$-2\frac{1}{8}$	$-6\frac{3}{10}$	$-7\frac{2}{5}$	$-4\frac{5}{12}$	$-3\frac{1}{7}$	$-2\frac{1}{2}$

8. $7\frac{9}{10} - 2\frac{7}{10} =$ _____ $8\frac{4}{5} - 6\frac{4}{5} =$ _____ $2\frac{13}{16} - 1\frac{7}{16} =$ _____

Problem Solving Reasoning **Solve.**

9. Sam has a board $4\frac{3}{4}$ feet long. He cuts $2\frac{1}{4}$ feet from the board to make a shelf. Will he have enough wood left to make another shelf the same length? Explain. _____

_____

Test Prep ★ Mixed Review

10. **Which number is composite?**

A 17

B 27

C 37

D 47

11. **A whale weighs about 62,400 pounds. A seal weighs about 197 pounds. *About* how many times heavier is the whale?**

F 3,000

G 300

H 30

J 3

Name _____

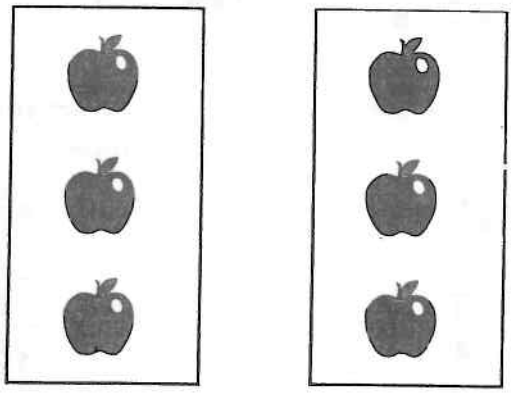
Multiplying Whole Numbers and Fractions

You can write a division equation to show 6 apples separated into 2 groups with 3 apples in each group.

$$6 \div 2 = 3$$

Each of the 2 groups has $\frac{1}{2}$ of the total number of apples. You can write a multiplication sentence to show this.

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



Here is how you multiply a whole number and a fraction:

1. Write the whole number as a fraction. Multiply the numerators.

$$\frac{4}{1} \times \frac{2}{5} = \frac{4 \times 2}{?}$$

2. Multiply the denominators.

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

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

3. Write your answer in simplest form.

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

$$= \frac{8}{5} \text{ or } 1\frac{3}{5}$$

Multiply. Write each product in simplest form.

1. $\frac{1}{2} \times 8 =$ _____ $\quad \frac{1}{4} \times 12 =$ _____ $\quad 6 \times \frac{2}{3} =$ _____

2. $\frac{1}{6} \times 18 =$ _____ $\quad \frac{1}{5} \times 10 =$ _____ $\quad \frac{3}{8} \times 9 =$ _____

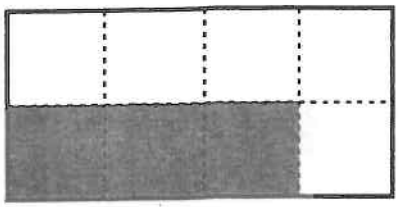
3. $\frac{1}{3} \times 15 =$ _____ $\quad 20 \times \frac{1}{4} =$ _____ $\quad 11 \times \frac{1}{3} =$ _____

4. $\frac{3}{4} \times 8 =$ _____ $\quad 14 \times \frac{5}{7} =$ _____ $\quad \frac{2}{5} \times 25 =$ _____

5. $3 \times \frac{4}{7} =$ _____ $\quad \frac{2}{9} \times 4 =$ _____ $\quad \frac{1}{4} \times 24 =$ _____

Name _____

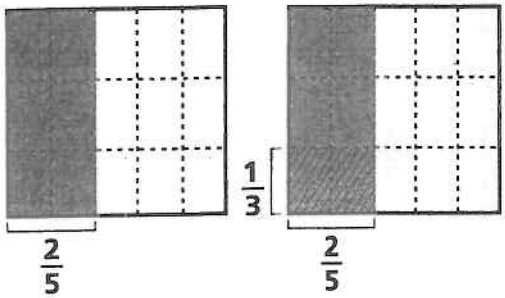
Modeling Multiplication of Fractions



Suppose you ate $\frac{3}{4}$ of $\frac{1}{2}$ of a pan of corn bread.

You actually ate $\frac{3}{8}$ of the whole pan of corn bread.

$$\frac{3}{4} \text{ of } \frac{1}{2} = \frac{3}{8}$$



Suppose you cut another whole pan of corn bread into **15** pieces as shown in the model on the left.

What is $\frac{1}{3}$ of $\frac{2}{5}$ of the corn bread?

$$\frac{1}{3} \text{ of } \frac{2}{5} = \frac{2}{15}$$

Finding a fraction of a fraction is the same as multiplying a fraction by a fraction.

Here's how to multiply $\frac{3}{4} \times \frac{1}{2}$.

$$\frac{3}{4} \text{ of } \frac{1}{2} = \frac{3}{4} \times \frac{1}{2}$$

1. Multiply the numerators to find the numerator of the product.

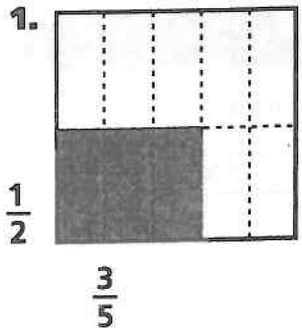
$$\frac{3}{4} \times \frac{1}{2} = \frac{3}{?}$$

2. Multiply the denominators to find the denominator of the product.

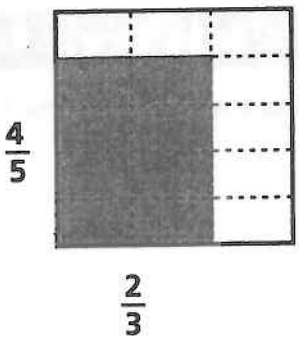
$$\frac{3}{4} \times \frac{1}{2} = \frac{3}{8}$$

Multiply. Use the model to check your answer.

1.



$\frac{1}{2} \times \frac{3}{5} =$ _____



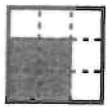
$\frac{4}{5} \times \frac{2}{3} =$ _____

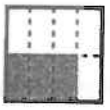
Multiply. Use the model to check your answer.

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

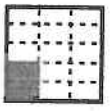
 $\frac{2}{3} \times \frac{2}{5} =$ _____

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

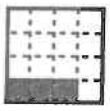
 $\frac{2}{3} \times \frac{2}{3} =$ _____

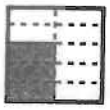
4.  $\frac{1}{2} \times \frac{3}{4} =$ _____

 $\frac{3}{4} \times \frac{3}{4} =$ _____

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

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

6.  $\frac{1}{4} \times \frac{3}{4} =$ _____

 $\frac{3}{5} \times \frac{1}{2} =$ _____

Problem Solving Reasoning

Solve.

7. When you multiply two whole numbers the product is equal to or greater than either of the factors. Is this true or false? Explain with examples.

_____

_____

8. When you multiply two fractions, is the product greater than or less than either of the factors? Give an example.

_____

_____

Test Prep ★ Mixed Review

9. **Which number makes the equation true?**
$31 - n = 26$

A 2

B 3

C 4

D 5

10. **Which number completes the table?**

n	3	40	500
$n \times 500$	1,500	20,000	?

F 2,500

G 25,000

H 250,000

J 2,500,000

Name _____

Multiplying Fractions

Remember, to multiply fractions:

1. Multiply the numerators to find the numerator of the product.
2. Multiply the denominators to find the denominator of the product.
3. Write your answer in simplest form.

$\frac{5}{6} \times \frac{3}{4} = \frac{15}{24}$ or $\frac{5}{8}$ ← simplest form $\frac{7}{8} \times \frac{4}{3} = \frac{28}{24}$ or $1\frac{1}{6}$ ← simplest form

Multiply.

1. $\frac{5}{8} \times \frac{3}{4} =$ _____ $\frac{2}{9} \times \frac{4}{3} =$ _____ $\frac{7}{6} \times \frac{1}{4} =$ _____
2. $\frac{2}{3} \times \frac{5}{7} =$ _____ $\frac{1}{10} \times \frac{1}{2} =$ _____ $\frac{3}{5} \times \frac{7}{5} =$ _____

Multiply. Write each product in simplest form.

3. $\frac{2}{3} \times \frac{7}{8} =$ _____ $\frac{4}{9} \times \frac{1}{2} =$ _____ $\frac{6}{7} \times \frac{3}{4} =$ _____
4. $\frac{5}{6} \times \frac{2}{3} =$ _____ $\frac{2}{7} \times \frac{1}{3} =$ _____ $\frac{1}{9} \times \frac{3}{7} =$ _____
5. $\frac{3}{5} \times \frac{1}{2} =$ _____ $\frac{4}{7} \times \frac{3}{4} =$ _____ $\frac{8}{9} \times \frac{5}{8} =$ _____
6. $\frac{4}{5} \times \frac{2}{9} =$ _____ $\frac{8}{9} \times \frac{3}{4} =$ _____ $\frac{1}{9} \times \frac{1}{8} =$ _____
7. $\frac{1}{3} \times \frac{8}{9} =$ _____ $\frac{2}{3} \times \frac{7}{9} =$ _____ $\frac{3}{4} \times \frac{2}{5} =$ _____
8. $\frac{4}{5} \times \frac{7}{8} =$ _____ $\frac{3}{4} \times \frac{6}{7} =$ _____ $\frac{7}{8} \times \frac{2}{9} =$ _____
9. $\frac{3}{4} \times \frac{2}{3} =$ _____ $\frac{4}{9} \times \frac{2}{7} =$ _____ $\frac{1}{9} \times \frac{1}{4} =$ _____

You can use the Multiplying by One Property to find equivalent fractions.

Some equivalent fractions for the number 1 are:

$$\frac{1}{1}, \frac{2}{2}, \frac{3}{3}, \frac{4}{4}, \frac{5}{5}, \frac{6}{6}, \frac{7}{7}, \frac{8}{8}$$

You can use any name for 1 and the property will still be true.

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

Multiplying $\frac{1}{4}$ by 1 and by $\frac{2}{2}$ does not change the value of $\frac{1}{4}$, because $\frac{1}{4}$ and $\frac{2}{8}$ are equivalent fractions.

Complete the equation with a name for 1.

5. $\frac{1}{2} \times$ ____ $= \frac{2}{4}$ $\frac{6}{7} \times$ ____ $= \frac{12}{14}$ $\frac{3}{4} \times$ ____ $= \frac{9}{12}$ $\frac{5}{8} \times$ ____ $= \frac{20}{32}$

Complete the equation to find an equivalent fraction.

6. $\frac{6}{7} \times \frac{4}{4} = \frac{}{28}$ $\frac{4}{10} \times \frac{}{} = \frac{}{20}$ $\frac{6}{9} \times \frac{}{} = \frac{12}{}$

7. $\frac{1}{5} \times \frac{}{} = \frac{2}{10}$ $\frac{2}{5} \times \frac{}{} = \frac{10}{}$ $\frac{3}{4} \times \frac{}{} = \frac{}{12}$

8. $\frac{3}{4} \times \frac{}{} = \frac{}{16}$ $\frac{3}{5} \times \frac{}{} = \frac{12}{}$ $\frac{5}{6} \times \frac{}{} = \frac{30}{}$

Problem Solving Reasoning **Solve using mental math.**

9. $\frac{250}{250} \times \frac{37}{90} = a$

_____ $= a$

$\left(\frac{1}{2} + \frac{47}{56}\right) + \frac{1}{2} = w$

_____ $= w$

$p + \left(\frac{81}{84} - \frac{81}{84}\right) = \frac{75}{79}$

_____ $= p$

Test Prep ★ Mixed Review

10. **Which number makes $1 + 99 = n + 1$ a true equation?**

A 101

B 99

C 98

D 97

11. **The school nurse measured four students. Taisha is 48 in. tall. Chan is 52 in. tall. Alaina and Mario are each 56 in. tall. What is their average height?**

F 48 in.

G 52 in.

H 53 in.

J 56 in.

Fractions at the Deli

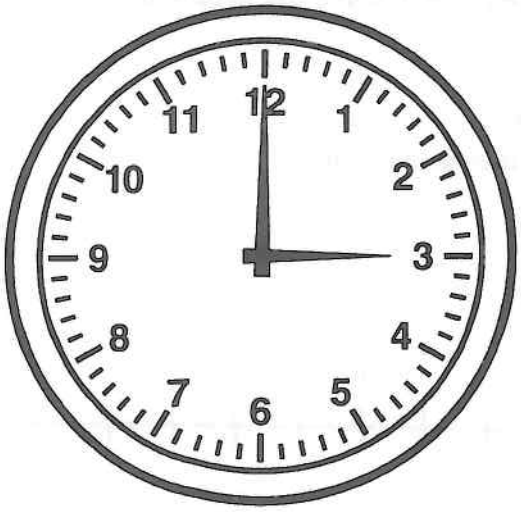
Write an equation for each problem. Use the number line to solve the problem.

A. Each sandwich is made from $\frac{1}{3}$ loaf of bread.
How many sandwiches can be made from 3 loaves of bread?

B. There are 4 pounds of sliced turkey.
$\frac{1}{3}$ pound of turkey is used for each sandwich.
4 pounds of turkey is enough for how many sandwiches?

C. $\frac{1}{2}$ pound of cheese is needed for each sandwich.
3 pounds of cheese is enough for how many sandwiches?

Fractions on a Clock



1 hour = 60 minutes

Parts of an Hour	
$\frac{1}{2}$	30 minutes
$\frac{1}{3}$	
$\frac{1}{4}$	
$\frac{1}{5}$	
$\frac{1}{6}$	
$\frac{1}{7}$	
$\frac{1}{8}$	
$\frac{1}{9}$	
$\frac{1}{10}$	
$\frac{1}{12}$	
$\frac{1}{15}$	
$\frac{1}{20}$	
$\frac{1}{30}$	
$\frac{1}{60}$	

A. Susan studies math for $\frac{5}{12}$ hr. How many minutes does she spend studying math?

B. Wanda works out for $\frac{3}{5}$ hr. How many minutes does she work out?

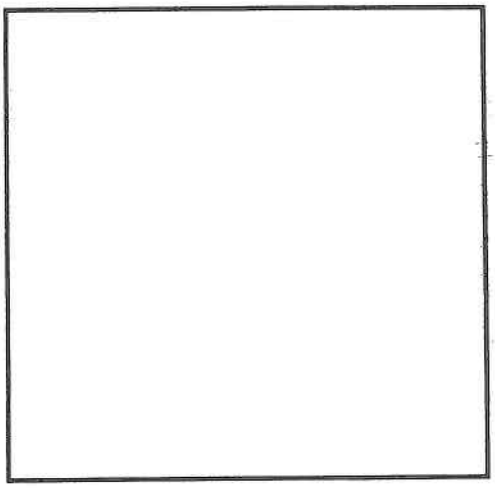
C. Joy jumps rope for $\frac{5}{8}$ hr. How many minutes does she spend jumping rope?

D. Monique makes dinner for $\frac{2}{7}$ hr. How many minutes does it take her to make dinner?

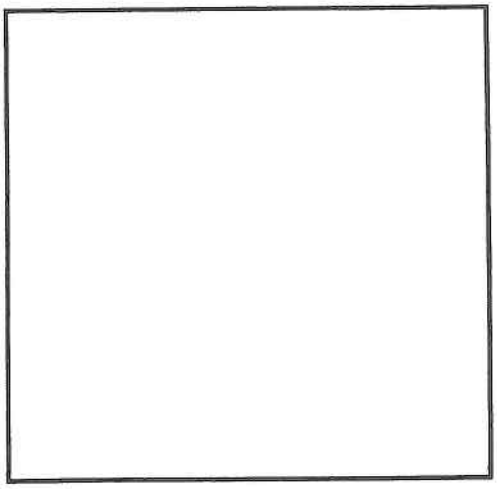
Fractions on Vacation

Use the whole to represent and solve problems with an area model.
Record an equation for each problem.

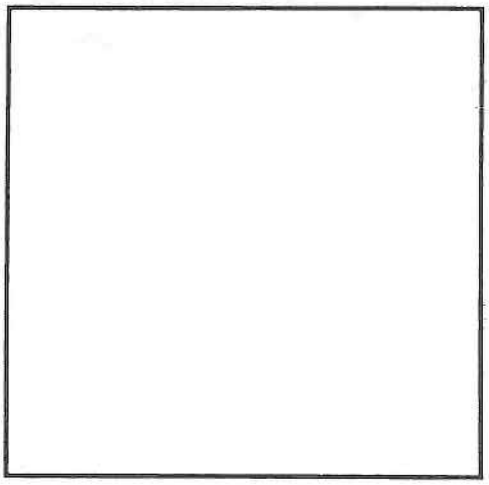
A. The Rucker Family spends $\frac{1}{2}$ of its vacation budget on hotels.
They spend $\frac{3}{4}$ of their hotel money to stay at Dew Drop Inn.
How much of their vacation budget do they spend at Dew Drop Inn?



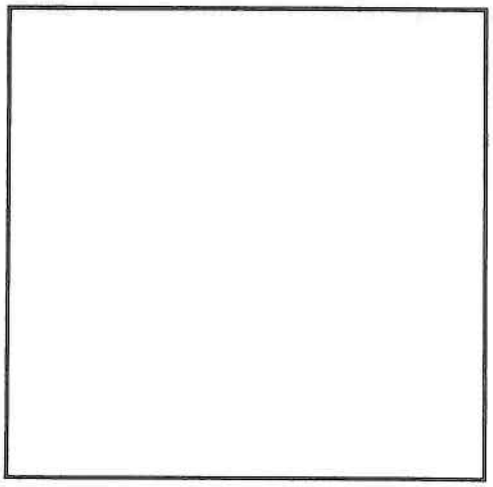
B. Mrs. Chang-Baxter spends $\frac{5}{6}$ of her vacation money at the arcade.
$\frac{2}{3}$ of the money she spends at the arcade she uses to play Circus from Mars.
How much of her vacation money does she spend playing Circus from Mars?



C. The Frazier Family spends $\frac{5}{8}$ of its vacation budget on transportation.
They spend $\frac{2}{3}$ of their transportation money on airfare.
How much of their vacation budget do they spend on airfare?



D. Miss Gallagher spends $\frac{3}{4}$ of her vacation money at Willy's Water World.
$\frac{3}{4}$ of the money she spends at Water World she uses to buy tickets for the Sloshbuckler.
How much of her vacation money does she spend riding The Sloshbuckler?



Name _____

Unscrambling Fractions

Find the numbers in each box to write two fractions that are equivalent to the fraction given.

1.

56	28	16
4	9	14
24	20	5

_____ $= \frac{8}{10}$

2.

24	3	12
2	24	50
32	18	8

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

3.

15	75	3
1	20	5
50	7	21

_____ $= \frac{15}{45}$

4.

3	15	27
6	2	4
44	21	36

_____ $= \frac{9}{12}$

5.

4	21	16
63	6	8
20	35	14

_____ $= \frac{2}{7}$

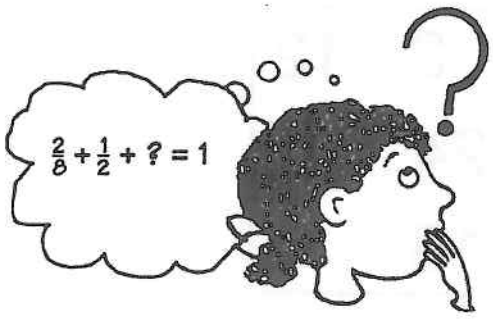
6.

6	7	44
4	63	3
2	20	14

_____ $= \frac{28}{42}$

Fraction Tic-Tac-Toe

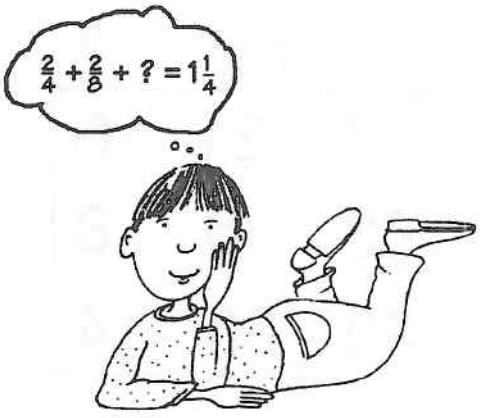
Make 1



$\frac{1}{4}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{2}{8}$
$\frac{1}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{8}$
$\frac{5}{8}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{5}{8}$
$\frac{2}{8}$	$\frac{1}{8}$	$\frac{5}{8}$	$\frac{1}{4}$

Make $1\frac{1}{4}$

$\frac{2}{8}$	$\frac{2}{8}$	$\frac{3}{4}$	$\frac{2}{4}$
$\frac{1}{4}$	$\frac{3}{6}$	$\frac{2}{4}$	$\frac{2}{8}$
$\frac{3}{4}$	$\frac{1}{2}$	$\frac{2}{8}$	$\frac{1}{2}$
$\frac{1}{4}$	$\frac{1}{4}$	$\frac{4}{8}$	$\frac{1}{4}$



Fraction Tic-Tac-Toe

Topic: Adding Fractions

Object: Cover three-in-a-row that add to the indicated sum.

Groups: Pair players or 2 players

Materials

- *Fraction Tic-Tac-Toe* gameboard (p. 111)
- transparent markers (2 colors)

Directions

1. After the group selects the *Make 1* or *Make* $1\frac{1}{4}$ playing grid, the first pair covers a fraction cell with one of the colored markers.
2. Then the second pair covers a fraction cell with a marker of the other color.
3. Pairs alternate turns covering cells, trying to cover three fractions in a row for the specified total.
4. The winner is the first pair to cover three fractions in a row that equal 1, or $1\frac{1}{4}$, depending upon the selected gameboard.

Relate Decimals to Fractions

Write a fraction for each decimal.

1. 0.2 _____
2. 0.14 _____
3. 0.127 _____
4. 0.68 _____
5. 0.05 _____
6. 0.84 _____
7. 0.8 _____
8. 0.28 _____
9. 0.01 _____
10. 0.678 _____
11. 0.35 _____
12. 0.61 _____

Write a decimal for each fraction.

13. $\frac{6}{10}$ _____
14. $\frac{83}{100}$ _____
15. $\frac{39}{100}$ _____
16. $\frac{645}{1,000}$ _____
17. $\frac{3}{10}$ _____
18. $\frac{1}{100}$ _____
19. $\frac{71}{100}$ _____
20. $\frac{16}{1,000}$ _____
21. $\frac{5}{10}$ _____
22. $\frac{12}{100}$ _____
23. $\frac{199}{1,000}$ _____
24. $\frac{33}{100}$ _____

Mixed Review

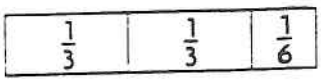
25. $\begin{array}{r} 122 \\ 174 \\ +\ 296 \\ \hline \end{array}$
26. $\begin{array}{r} 138 \\ 104 \\ +\ 186 \\ \hline \end{array}$
27. $\begin{array}{r} 1,302 \\ +\ 2,996 \\ \hline \end{array}$
28. $\begin{array}{r} 21.2 \\ 7.9 \\ +\ 39.6 \\ \hline \end{array}$

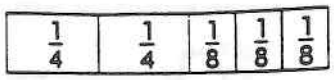
29. $\begin{array}{r} 13,274 \\ -\ 2,016 \\ \hline \end{array}$
30. $\begin{array}{r} 7,520 \\ +\ 1,381 \\ \hline \end{array}$
31. $\begin{array}{r} 67,794 \\ -\ 5,418 \\ \hline \end{array}$
32. $\begin{array}{r} 23,681 \\ +\ 99,875 \\ \hline \end{array}$

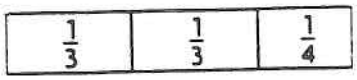
33. $\begin{array}{r} 779 \\ \times\ 6 \\ \hline \end{array}$
34. $\begin{array}{r} 4,782 \\ \times\ 3 \\ \hline \end{array}$
35. $\begin{array}{r} 48,119 \\ \times\ 7 \\ \hline \end{array}$
36. $\begin{array}{r} 361,195 \\ \times\ 5 \\ \hline \end{array}$

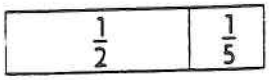
Add Unlike Fractions

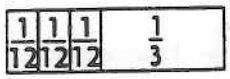
Use fraction bars to find the sum.

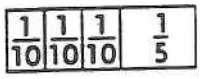
1. 

2. 

3. 

4. 

5. 

6. 

7. $\frac{1}{3} + \frac{1}{6}$

8. $\frac{5}{8} + \frac{1}{4}$

9. $\frac{3}{4} + \frac{1}{6}$

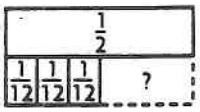
10. $\frac{7}{10} + \frac{1}{5}$

11. $\frac{4}{10} + \frac{1}{5}$

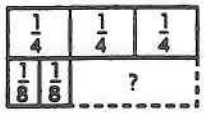
12. $\frac{1}{5} + \frac{7}{10}$

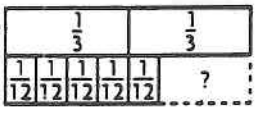
Subtract Unlike Fractions

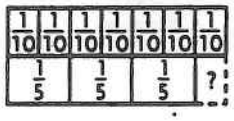
Use fraction bars to find the difference.

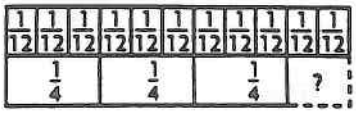
1. 

2. 

3. 

4. 

5. 

6. 

7. $\frac{4}{5} - \frac{3}{10}$

8. $\frac{4}{6} - \frac{5}{12}$

9. $\frac{5}{6} - \frac{5}{12}$

10. $\frac{1}{2} - \frac{4}{10}$

11. $\frac{6}{8} - \frac{1}{2}$

12. $\frac{2}{3} - \frac{3}{6}$

Multiplying Whole Numbers and Decimals

You can also multiply using a decimal. Multiply as with whole numbers. Then write the decimal point in the product.

$$\begin{array}{r} 0.7 \\ \times\ 3 \\ \hline 2.1 \end{array}$$ ← 1 decimal place

The product must have as many decimal places as there are in the factors.

Multiply with a decimal.

$$\begin{array}{r} 0.82 \\ \times\ 3 \\ \hline 2.46 \end{array}$$ ← 2 decimal places

There are a total of 2 decimal places in the factors. So, there are 2 decimal places in the product.

Multiply.

0.5 × 5	0.1 × 7	0.9 × 6	0.2 × 6	0.4 × 7	0.7 × 7	0.9 × 9	0.6 × 6
0.03 × 5	0.31 × 2	0.11 × 7	0.75 × 5	0.03 × 7	0.33 × 8		

Multiplying Decimals by Decimals

You can use what you know about whole numbers to multiply decimals.

1. Multiply as you would whole numbers.

$$\begin{array}{r} 1.6 \\ \times\ 0.8 \\ \hline 128 \end{array}$$

2. Find the total number of decimal places in the two factors.

$$\begin{array}{r} {\scriptstyle 1}1.6 \\ \times\ 0.8 \\ \hline 128 \end{array}$$ 1 place + 1 place = 2 places

3. Write the decimal point in the product.

$$\begin{array}{r} {\scriptstyle 1}1.6 \\ \times\ 0.8 \\ \hline 1.28 \end{array}$$ ← 2 places

Multiply.

3.74 × 0.8	8.29 × 0.9	65.3 × 0.7	4.28 × 1.2	93.1 × 2.9
72.9 × 3.8	8.34 × 4.7	67.5 × 5.3	5.83 × 0.93	96.2 × 0.89

Problem Solving Strategy

Make a Graph

Mr. Schwartz recorded the number of newspapers he sold in his store every day of the week for two weeks. Newspapers sales were 60, 65, 66, 71, 71, 72, 74, 75, 76, 77, 79, 80, 81, and 83. Is the number sold usually in the 60's, 70's, or 80's?

You can make a stem-and-leaf plot to organize the data by place value.

Make a column of the tens digits of the data, listing them in order from least to greatest. These are the **stems.**

Stem	Leaves
6	
7	
8	

Beside each tens digit, record the ones digits of the data, in order from least to greatest. These are the **leaves.**

Stem	Leaves
6	0 5 6
7	1 1 2 4 5 6 7 9
8	0 1 3

The stem-and-leaf plot shows the greatest number of leaves are on the 7 stem. So, the number of newspapers sold is usually in the 70's.

Make a graph to solve.

1. Lynnette's golf scores are 72, 74, 74, 78, 80, 82, 83, 87, 88, and 91. Does she usually score in the 70's, 80's, or 90's?

   _____

2. The coach of the Tigers recorded the number of parents that attended each home baseball game. Parents' attendance was 16, 17, 23, 24, 29, 30, 33, 36, 36, and 38. Is parents' attendance usually in the 10's, 20's, or 30's?

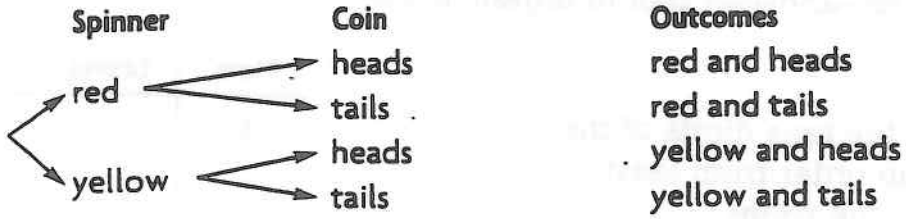
   _____

Problem Solving Strategy

Make an Organized List

Making an organized list can help you determine the possible outcomes of a probability experiment.

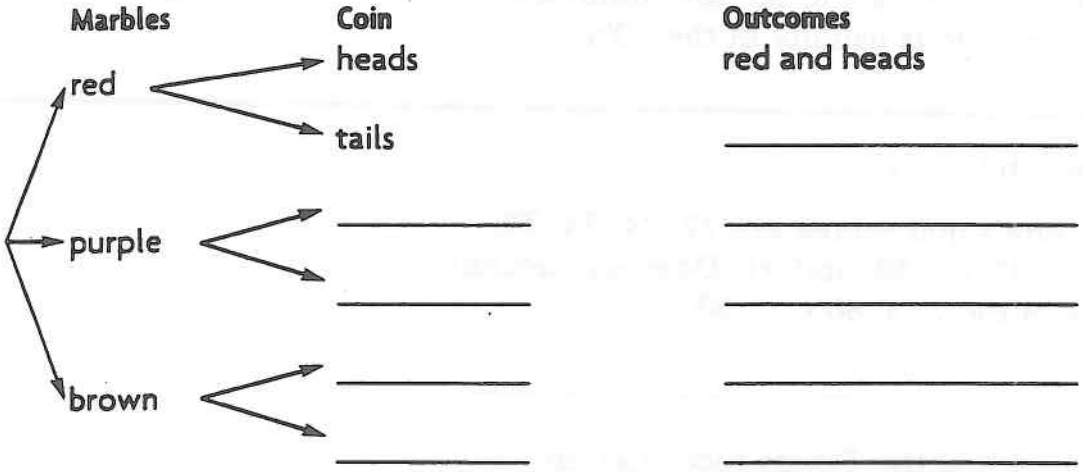
Sharon has a coin and a spinner divided into two sections: red and yellow. She will toss the coin and spin the spinner. What are the possible outcomes? How many are there?



So, there are 4 possible outcomes.

Make an organized list to solve.

1. Jereme is conducting a probability experiment with a coin and a bag of marbles. He has 3 marbles in the bag: 1 red, 1 purple, and 1 brown. He will replace the marble after each turn. How many possible outcomes are there for this experiment? What are they?



There are _____ possible outcomes.

2. Sarah has 10¢. How many different combinations of coins could she have? _____

Problem Solving Strategy:

Make a Graph

The school population has changed over the last five years. Sid wants to use this data to predict next year's school population. He organized the data into a table.

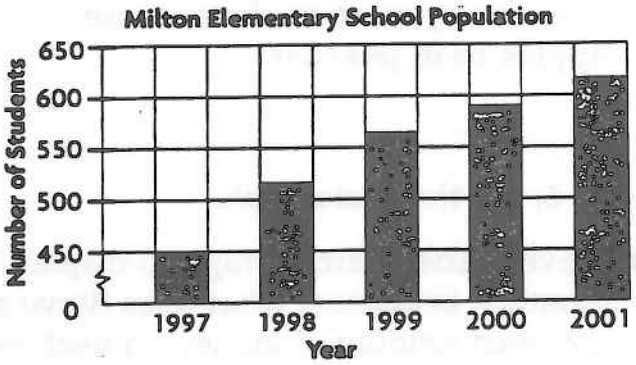
Milton Elementary School Population					
Year	1997	1998	1999	2000	2001
Number of Students	450	520	560	580	620

Then he planned how to display the data using a bar graph. The interval skipped from 0 to 450, so Sid used a zigzag line to show a break in the scale.

He finds the range is 170.

He chooses the interval of 50.

Using the graph, Sid predicts that next year's population will be about 650 students.



Make a graph to solve.

1. Mr. Struther surveyed some students to find ideas for a field trip. He organized the data into a table. What graph or plot should he use to display the data? Make a graph or plot.

FIELD TRIP IDEAS			
Locations	Zoo	Museum	Aquarium
Number of Students	40	30	50

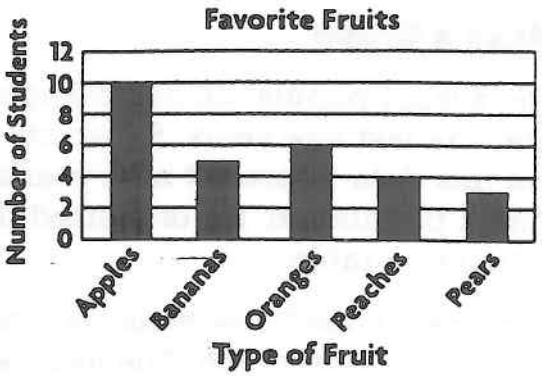
2. Attendance at the zoo was organized into a table. What graph or plot would best display the data? Make a graph or plot.

ATTENDANCE AT THE ZOO				
Month	April	May	June	July
Number of People	640	620	680	600

3. A baseball team kept track of the number of parents at the baseball games. The team organized the data into a table. What graph or plot would best display the data? Make a graph or plot.

PARENTS AT BASEBALL GAMES							
Game	1	2	3	4	5	6	7
Number of Parents	23	12	24	17	29	16	21

Analyze Graphs



For 1–3, use the bar graph.

1. Mark's class recorded their favorite fruits in a bar graph. Which type of fruit is most popular? How many students chose that fruit?

_____

2. How many more students chose apples than peaches?

_____

3. How many students recorded their favorite fruits?

_____

For 4–6, use the circle graph.

4. Steve made a circle graph to display his monthly expenses. What does Steve spend the least amount of money on each month? What does he spend the most on?

_____

5. On what two items does Steve spend about the same amount each month?

_____

6. How much does Steve spend in a month on comic books and baseball cards?

_____

Mixed Review

Solve.

7. $14 + n = 56$

_____

8. $27 - n = 1$

_____

Write in standard form.

9. seven and seven hundred twelve thousandths

_____

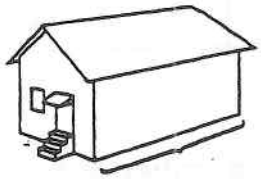
10. forty-one and three hundred eighty-seven ten-thousandths

_____

Metric Units and Tools
Practice on Your Own

Skill 57

Choose the metric tool and unit you would use to measure each.

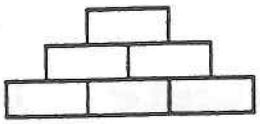


length of a house

tool: meterstick
unit: meters

bowl of soup

tool: metric cup
unit: milliliters



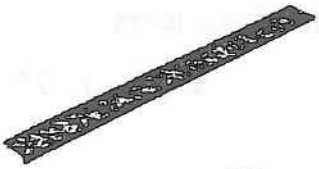
mass of six bricks

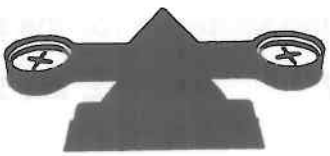
tool: balance
unit: kilograms

temperature on an iceberg

tool: thermometer
unit: degrees Celsius

Tools:





Units: centimeters, meters, kilometers, grams, kilograms, milliliters, liters, degrees Celsius

Complete. Choose the metric tool or unit that you would use to measure each.

1. distance across your room
   meterstick or balance
   Tool: _____
   Unit: _____

2. a glass of juice
   thermometer or metric cup
   Tool: _____
   Unit: _____

3. temperature of bath water
   balance or thermometer
   Tool: _____
   Unit: _____

4. a few drops of honey
   liters or milliliters

5. the mass of a grape
   grams or kilograms

6. the length of your hand
   centimeters or kilometers

Choose the metric tool you would use to measure each, then choose the unit.

7. the amount of milk in a big container
   _____
   _____

8. the mass of a computer
   _____
   _____

9. how tall you are
   _____
   _____

Find the Mean

Tom has taken three tests. He wants to know his average score for the three tests. The type of average Tom is looking for is called the **mean.**

Tom's Test Scores			
Test	1	2	3
Score	80	70	90

Step 1

Add the three test scores together.

$80 + 70 + 90 = 240$

Step 2

Divide the sum by the number of tests.

$240 \div 3 = 80$

So, Tom's mean test score is 80.

Write an addition sentence for the sum of each set of numbers.

1. 3, 5, 4, 1, 7 _____
2. 20, 15, 10 _____
3. 22, 26, 28, 32 _____

Write how many numbers are listed in each set of numbers.

4. 3, 5, 4, 1, 7 _____
5. 20, 15, 10 _____
6. 22, 26, 28, 32 _____

Write a division sentence to find the mean for each set of numbers.

7. 3, 5, 4, 1, 7 _____
8. 20, 15, 10 _____
9. 22, 26, 28, 32 _____

10. One month later, Tom took 5 more tests. His scores were 80, 70, 90, 90, and 100. What is the mean of these test scores? Show your work.

_____

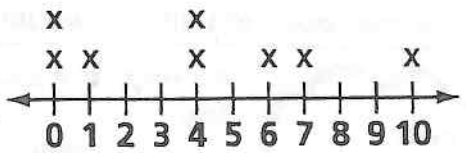
Find the mean for each set of data.

11. 9, 11, 13, 13, 9 _____
12. 33, 28, 35, 33, 26 _____
13. 105, 112, 133, 118, 102 _____

Name _____

Averages

This **line plot** shows the number of pennies 8 students have in their pockets. What is the average number of pennies the students have?



To find the **average** or **mean** of a set of numbers:

1. Add the numbers.

$$\underbrace{0 + 0 + 1 + 4 + 4 + 6 + 7 + 10}_{\text{8 addends}} = \underbrace{32}_{\text{sum}}$$

2. Divide the sum by the number of addends.

$$32 \div 8 = 4$$

The average number of pennies is **4**.

Find the average of each group of numbers.

1. 3, 6, 9 _____
2. 7, 11, 30 _____
3. 42, 76, 83 _____
4. 6, 8, 19, 15 _____
5. 183, 157, 170 _____
6. 110, 108, 98, 60, 139 _____
7. 79, 95, 80, 66, 77, 77 _____
8. 86, 95, 59, 74, 58, 83, 70 _____
9. 65, 37, 45, 18, 21, 44 _____

0, 2, 4 _____

$11, $13 _____

1, 2, 3, 4, 5 _____

59¢, 42¢, 58¢ _____

562, 571, 538, 573 _____

80, 59, 43, 46 _____

72, 65, 36, 57, 87, 97, 57, 65 _____

125, 240, 360, 255, 190 _____

100, 112, 114, 118, 106 _____

1, 5, 9 _____

100, 200 _____

5, 12, 15, 8 _____

19, 42, 31, 8 _____

Customary Units and Tools
Practice on Your Own

Skill 56

Choose the tool and unit you would use to measure each.

Think: What tool do I use to measure? What unit do I use?

the length of a soccer field	the weight of a truck	the amount of water in a bathtub
		
Use a measuring tape.	Use a scale.	Use a gallon container.
Measure in yards.	Measure in tons.	Measure in gallons.

Tools:


inch ruler


yardstick


scale


odometer


gallon container


measuring cup


pint container

Units: inches, feet, yards, miles, ounces, pounds, tons, cups, pints, gallons.

Complete. Choose the tool and unit that you would use to measure each.

1. the length of a pencil
   Tool _____
   Units _____
2. the width of a window
   Tool _____
   Units _____
3. the weight of a whale
   Tool _____
   Units _____
4. the amount of water needed to make a glass of lemonade
   Tool _____
   Units _____
5. the weight of a coin
   Tool _____
   Units _____
6. the height of a fence
   Tool _____
   Units _____
7. the weight of a watermelon
   Tool _____
   Units _____
8. the amount of juice in a juice box
   Tool _____
   Units _____
9. the distance between two state capitals
   Tool _____
   Units _____

Complete. Choose the tool and units that you would use to measure each.

10. the amount of milk in a large bucket
    Tool _____
    Units _____
11. the width of a computer
    Tool _____
    Units _____
12. the weight of a bicycle
    Tool _____
    Units _____

Name _____

Unit 6 Review

Identify the place value of each underlined digit.

1. 5.4 _____
2. 341.64 _____
3. 700.009 _____

Compare. Write <, > or =.

4. 1.9 ○ 1.09
5. 13.5 ○ 13.55
6. 476.99 ○ 476.990

Write each fraction or mixed number as a decimal. Write each decimal as a fraction or mixed number.

7. $\frac{5}{100}$ _____
8. $1\frac{43}{100}$ _____
9. 0.3 _____
10. 2.035 _____

Estimate each sum or difference by rounding each number to the given place.

11. one $\begin{array}{r} 46.49 \\ +\ 3.6 \\ \hline \end{array}$
12. hundredth $\begin{array}{r} 8.455 \\ -\ 0.384 \\ \hline \end{array}$
13. tenth $\begin{array}{r} 36.071 \\ -\ 3.04 \\ \hline \end{array}$

Estimate each sum or difference. Then add or subtract.

14. $\begin{array}{r} 4.7 \\ -\ 0.8 \\ \hline \end{array}$
15. $\begin{array}{r} 3.06 \\ +\ 4.7 \\ \hline \end{array}$
16. $\begin{array}{r} 50.56 \\ +\ 29.6 \\ \hline \end{array}$
17. $\begin{array}{r} 650.10 \\ -\ 3.04 \\ \hline \end{array}$
18. $\begin{array}{r} 58.005 \\ +\ 4.77 \\ \hline \end{array}$

Multiply.

19. $\begin{array}{r} 0.8 \\ \times\ 8 \\ \hline \end{array}$
20. $\begin{array}{r} 0.53 \\ \times\ 61 \\ \hline \end{array}$
21. $\begin{array}{r} 6.55 \\ \times\ 0.54 \\ \hline \end{array}$
22. $\begin{array}{r} 10.05 \\ \times\ 0.7 \\ \hline \end{array}$
23. $\begin{array}{r} 0.46 \\ \times\ 100 \\ \hline \end{array}$

Divide and check.

24. $7\overline{)45.5}$
25. $6\overline{)2.7}$
26. $25\overline{)0.3}$
27. $100\overline{)40.6}$
28. $3.7\overline{)8.51}$

Use the Guess and Check strategy. Solve.

29. The total weight of the Sarah's packages is 3.69 kg. One package weighs twice as much as the other. How much does each package weigh? _____

Name _____

Unit 6 Review

Identify the place value of each underlined digit.

1. 5.4 _____
2. 341.64 _____
3. 700.009 _____

Compare. Write <, > or =.

4. 1.9 ○ 1.09
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Write each fraction or mixed number as a decimal. Write each decimal as a fraction or mixed number.

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Multiply.

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21. $\begin{array}{r} 6.55 \\ \times\ 0.54 \\ \hline \end{array}$
22. $\begin{array}{r} 10.05 \\ \times\ 0.7 \\ \hline \end{array}$
23. $\begin{array}{r} 0.46 \\ \times\ 100 \\ \hline \end{array}$

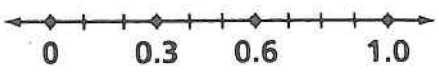
Divide and check.

24. $7\overline{)45.5}$
25. $6\overline{)2.7}$
26. $25\overline{)0.3}$
27. $100\overline{)40.6}$
28. $3.7\overline{)8.51}$

Use the Guess and Check strategy. Solve.

29. The total weight of the Sarah's packages is 3.69 kg. One package weighs twice as much as the other. How much does each package weigh? _____

To compare decimals, you can use a number line. The decimal farther to the right is greater.



You can also compare digits with the same place value.

Think: 1.0 > 0.6

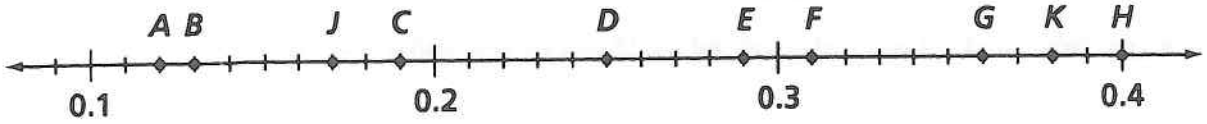
To compare **0.25** and **0.205**, write a zero in the hundredths place so that both numbers have the same number of decimal places.

0.250 ◯ 0.205

Compare the digits in each place value from left to right.

5 hundredths > 0 hundredths, so 0.250 > 0.205

Match each number with a point on the number line.



9. 0.25 _____ 0.12 _____ 0.31 _____ 0.13 _____ 0.19 _____

10. 0.29 _____ 0.36 _____ 0.38 _____ 0.40 _____ 0.17 _____

Compare. Write <, >, or =.

11. 0.3 ◯ 0.13 0.12 ◯ 0.012 1.56 ◯ 0.516 0.010 ◯ 0.01

12. 3.28 ◯ 3.820 0.054 ◯ 0.45 1.008 ◯ 0.08 1.25 ◯ 2.95

Write the decimals in order from least to greatest.

13. 0.127, 0.72, 1.270 _____ 0.71, 0.43, 0.74 _____

14. 1.295, 2.085, 0.925 _____ 0.487, 0.58, 0.009 _____

Problem Solving Reasoning **Solve.**

15. What is the greatest decimal less than 1 that you can write using the digits **0, 1, 2, 3,** and **4** only once? The least decimal? _____

Test Prep ★ Mixed Review

16 **What is the standard numeral for 8 billion 8 million?**

A 8,008,000

B 8,080,000

C 8,008,000,000

D 8,080,000,000

17 **What is the value of $400 \times 10 \div a$ when $a = 10$?**

F 4

G 40

H 400

J 4000

Name _____

Comparing and Ordering Decimals and Fractions

You can write fractions and mixed numbers as decimals.

$\frac{4}{10} = 0.4$ ← 4 tenths $21\frac{5}{100} = 21.05$ ← 21 and 5 hundredths

It is often helpful to know decimal equivalents for common fractions.

$0.5 = \frac{5}{10} \rightarrow \frac{1}{2}$ Simplest Form $0.25 = \frac{25}{100} \rightarrow \frac{1}{4}$ $0.6 = \frac{1}{10} \rightarrow \frac{3}{5}$

To compare a fraction and a decimal, first write them in the same form.

Compare $\frac{1}{2}$ and 0.7.

$\frac{1}{2} = \frac{5}{10} \rightarrow 0.5$

$0.5 < 0.7$, so $\frac{1}{2} < 0.7$

Compare $\frac{3}{100}$ and 0.03.

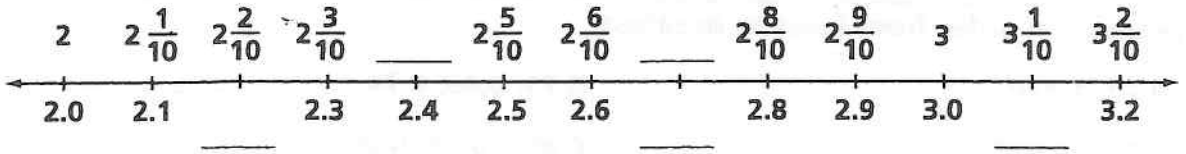
$\frac{3}{100} = 0.03$

Compare $4\frac{7}{10}$ and 3.2

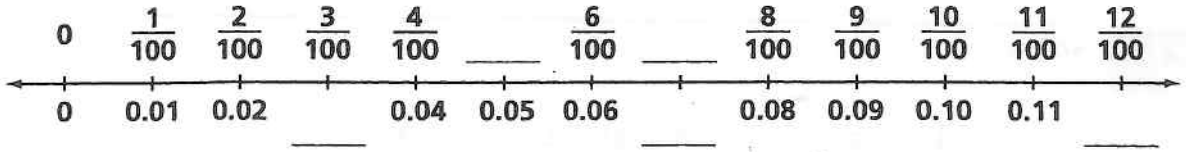
$4 > 3$, so $4\frac{7}{10} > 3.2$

Use fractions, mixed numbers, and decimals to name points on the number line. Write each missing number.

1.



2.



Write each fraction or mixed number as a decimal.

3. $\frac{17}{100} =$ _____ $\frac{83}{100} =$ _____ $15\frac{30}{100} =$ _____ $1\frac{52}{100} =$ _____

4. $2\frac{73}{1{,}000} =$ _____ $\frac{19}{1{,}000} =$ _____ $9\frac{142}{1{,}000} =$ _____ $\frac{1}{1{,}000} =$ _____

Dividing by One-Tenth

Solve.

A. _____ = 73 ÷ 0.1	B. _____ ÷ 0.1 = 40
C. _____ = 38.6 ÷ 0.1	D. 7.3 ÷ 0.1 = _____
E. _____ ÷ 0.1 = 38,600	F. 1,300.7 ÷ 0.1 = _____
G. _____ = 5 ÷ 0.1	H. 4 = _____ ÷ 0.1

On the back, write word problems that could represent some of these equations.

Dividing Decimals — Tenths by Tenths

Solve each equation.

A. $7.2 \div 0.9 = \_\_\_\_$	B. $3.6 \div \_\_\_\_ = 9$
C. $\_\_\_\_ \div 0.4 = 7$	D. $10 = \_\_\_\_ \div 0.4$
E. $\_\_\_\_ = 5.5 \div 0.5$	F. $6 = 2.4 \div \_\_\_\_$
G. $7 = \_\_\_\_ \div 0.6$	H. $10.4 \div 0.2 = \_\_\_\_$

Dividing by 1 Hundredth

Solve.

A. $0.23 \div 0.01 =$ _____	B. _____ $\div 0.01 = 390$
C. $5.05 \div 0.01 =$ _____	D. $14.02 \div 0.01 =$ _____
E. _____ $= 36.52 \div 0.01$	F. $1{,}057 \div 0.01 =$ _____
G. _____ $\div 0.01 = 40$	H. _____ $\div 0.01 = 803$

Name _____

Tell whether you would *add*, *subtract*, *multiply*, or *divide*. Then give the answer.

1. Mr. Camp bought 3 boxes of golf balls. Each box had 8 balls. How many golf balls did he buy in all?

_____

_____

2. Mrs. Jarvis bought golf balls in boxes of 4. She bought a total of 32 golf balls. How many boxes did she buy?

_____

_____

3. At the driving range, Dick bought 3 buckets of golf balls. Each bucket had 45 balls. How many golf balls did he buy in all?

_____

_____

4. Jason collected 42 golf balls. He put 6 balls in each bag. How many bags did he use?

_____

_____

5. Leslie took 94 shots for 18 holes of golf. Marta took 13 more shots than Leslie. How many shots did Marta take?

_____

_____

6. A team bought 72 golf balls to use for a tournament. If they bought the golf balls in boxes of 8, how many boxes did the team buy?

_____

_____

7. The pro shop had 57 boxes of golf balls at the start of the week. At the end of the week, there were 18 boxes left. How many boxes were sold during the week?

_____

_____

8. Jean played 9 holes of golf. She took the same number of shots for each hole. If she took a total of 36 shots, how many shots did she take for each hole?

_____

_____

Tables of Measures

Metric System

Prefixes

kilo (k)	=	1,000	
hecto (h)	=	100	
deka (da)	=	10	
deci (d)	=	0.1	= $\frac{1}{10}$
centi (c)	=	0.01	= $\frac{1}{100}$
milli (m)	=	0.001	= $\frac{1}{1,000}$

Length

1 kilometer (km)	=	1,000 meters (m)
1 hectometer (hm)	=	100 meters
1 dekameter (dam)	=	10 meters
1 decimeter (dm)	=	0.1 meter
1 centimeter (cm)	=	0.01 meter
1 millimeter (mm)	=	0.001 meter

Capacity

1 kiloliter (kL)	=	1,000 liters (L)
1 hectoliter (hL)	=	100 liters
1 dekaliter (daL)	=	10 liters
1 deciliter (dL)	=	0.1 liter
1 centiliter (cL)	=	0.01 liter
1 milliliter (mL)	=	0.001 liter

Mass

1 kilogram (kg)	=	1,000 grams (g)
1 hectogram (hg)	=	100 grams
1 dekagram (dag)	=	10 grams
1 decigram (dg)	=	0.1 gram
1 centigram (cg)	=	0.01 gram
1 milligram (mg)	=	0.001 gram

Customary System

Length

1 foot (ft)	=	12 inches (in.)
1 yard (yd)	=	3 feet
1 yard	=	36 inches
1 mile (mi)	=	5,280 feet

Capacity

1 tablespoon (tbs)	=	3 teaspoons (tsp)
1 fluid ounce (fl oz)	=	2 tablespoons
1 cup (c)	=	8 fluid ounces
1 pint (pt)	=	2 cups
1 pint	=	16 fluid ounces
1 quart (qt)	=	2 pints
1 gallon (gal)	=	4 quarts

Weight

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

Area

1 square foot (ft^2)	= 144 square inches ($in.^2$)
1 square yard (yd^2)	= 9 square feet
1 acre (A)	= 4,840 square yards
1 square mile (mi^2)	= 640 acres

Other Measures

Time

1 minute (min)	=	60 seconds (s)
1 hour (h)	=	60 minutes
1 day (d)	=	24 hours
1 week (wk)	=	7 days
1 month (mo)	≈	4 weeks
1 year (yr)	=	12 months
1 year	=	52 weeks
1 year	=	365 days
1 leap year	=	366 days
1 decade	=	10 years
1 century	=	100 years

Counting

1 dozen (doz)	=	12 things
1 score	=	20 things
1 gross (gro)	=	12 dozen
1 gross	=	144 things

Tables of Measures

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1 year	=	52 weeks
1 year	=	365 days
1 leap year	=	366 days
1 decade	=	10 years
1 century	=	100 years

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1 gross	=	144 things

Glossary

A

acute angle An angle whose measure is less than 90°

acute triangle A triangle whose largest angle is an acute angle

addend A number to be added in an addition expression

adding 0 property Adding zero to any number does not change the number.
Examples: $7 + 0 = 7$ and $n + 0 = n$

addition The arithmetic operation that combines two numbers

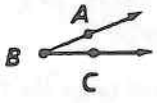
Example:

$$\begin{array}{rl} 23 & \Leftarrow \text{addend} \\ +13 & \Leftarrow \text{addend} \\ \hline 36 & \text{sum} \end{array}$$

algebraic expression (see expression)

altitude (of a plane figure) A segment of a triangle or parallelogram that is perpendicular to the base. In a triangle one endpoint is the vertex opposite the base.

angle A geometric figure formed by two rays with a common endpoint. The angle below can be named either ∠ABC or ∠B.



angle *ABC* or ∠ *ABC*

area A measure of the number of square units in a region or a surface

associative property of addition (also called the grouping property of addition) Changing the grouping of the addends does not change the sum.
Example: $(37 + 95) + 5 = 37 + (95 + 5) = 137$

associative property of multiplication (also called the grouping property of multiplication) Changing the grouping of the factors does not change the product.
Example:
$(25 \times 5) \times 2 = 27 \times (5 \times 2) = 270$

average (or mean) A measure of central tendency. It is computed by adding all the items of data and dividing by the number of items.

axis (see *x-axis*, *y-axis*) A reference line on a graph

B

bar graph A pictorial representation of data that uses lengths of bars to show the information

base (of an exponent) The number that is used as a factor when evaluating powers
Example: $3^4 = 3 \times 3 \times 3 \times 3$
The base is 3.

base (of a geometric figure) A side or face in a plane or solid figure

billion The number 1,000 million or 1,000,000,000

C

capacity The maximum amount of liquid that a container can hold

Celsius temperature scale (°C) The temperature scale in the metric system in which the freezing temperature of water is 0°C and the boiling temperature of water is 100°C.

center (see *circle*)

centi- A prefix meaning one hundredth
Example: A centimeter is 0.01 meter.

central angle An angle whose vertex is the center of a circle

certain event An event that will always occur, such as "The sun will rise tomorrow morning." The probability of a certain event is 1.

chord A segment joining any two points on a circle

circle A plane figure that has all of its points the same distance from a given point called the center

circle graph A pictorial representation of data that uses sections of a circle to show the information

cluster Several items of data grouped into a small interval

common denominator A denominator used when adding two or more fractions with unlike denominators. Any common multiple of the given denominators can be used to write equivalent fractions.
Example: Some common denominators of $\frac{1}{2}$ and $\frac{1}{3}$ are 6, 12, 18, 24,...

common factor A number that is a factor of two or more whole numbers
Example: 1, 2, 3, and 6 are common factors of 12 and 18.

common multiple A number that is a multiple of two or more whole numbers
Example: Common multiples of 3 and 4 are 12, 24, 36,...

commutative property of addition (also called the order property of addition) Changing the order of the addends does not change the sum.
Example: $3 + 4 = 4 + 3 = 7$

commutative property of multiplication (also called the order property of multiplication) Changing the order of the factors does not change the product.
Example: $3 \times 5 = 5 \times 3 = 15$

compass A tool used to construct circles and other figures

compatible numbers Numbers used to make estimates. They are easy to work with mentally and are close to the given numbers.

composite number A number with three or more factors
Example: 9 is composite, because its factors are 1, 3, and 9.

Example: This plot shows the following data:

82, 82, 87, 95, 112, 113

stem	leaves
8	2 2 7
9	5
10	
11	2 3

straight angle An angle whose measure is 180°

substitution Replacing one symbol by another.
Example: A number such as 5 can be substituted for n in the expression $15 \div n$

subtraction An arithmetic operation that takes away a given amount
Example:
$$\begin{array}{r} 345 \\ -122 \\ \hline 223 \end{array} \leftarrow \text{difference}$$

sum The answer to an addition problem

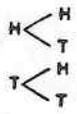
surface area The total area of all the faces or surfaces of a space figure

T

term (of a ratio) Either of the two numbers of a ratio

trapezoid A quadrilateral that has exactly one pair of parallel sides

tree diagram A organized way of listing all the possible outcomes of an experiment



triangle A polygon that has three sides

U

unit A fixed quantity used as a standard for length, area, volume, weight, and so on

unit fraction A fraction with a numerator of 1
Examples: $\frac{1}{3}$ and $\frac{1}{7}$

unit price The cost of a single unit of an item
Example: $3 per pound for hamburger meat

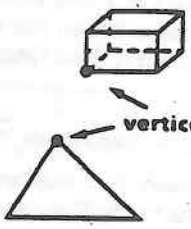
unit rate A rate whose second term is a single unit, such as 50 miles per hour

V

variable A letter that is used to represent one or more numbers

variable expression An expression that contains one or more variables

vertex The common point where two sides or edges meet (plural: vertices)



volume A measure of the space within a closed figure in space

W–X–Y–Z

whole number Any of the numbers 0, 1, 2, 3, . . .

***x*-axis** The horizontal number line on a coordinate plane

***y*-axis** The vertical number line on a coordinate plane

zero power of a number The zero power of any number that is not zero is 1.
Example: $10^0 = 1$

Symbols

$<$	is less than
$>$	is greater than
$=$	is equal to
$\neq$	is not equal to
n	variable or placeholder
$+$	plus, addition symbol
$-$	minus, subtraction symbol
$\times$	times, multiplication symbol
$\div$	divided by, division symbol
5^4	5 to the fourth power, or $5 \times 5 \times 5 \times 5$
$^\circ$	degree
(2, 3)	the ordered pair 2, 3
A	point A
$\overleftrightarrow{AB}$	line AB
$\overline{AB}$	segment AB
$\overrightarrow{AB}$	ray AB
$\angle$	angle
$\cong$	is congruent to
$\perp$	is perpendicular to
$\parallel$	is parallel to
$\triangle$	triangle
$a : b$	the ratio of a to b
%	percent
$P(A)$	The probability of event A
$+5$	positive five
-5	negative five