# SUMMER
# MA + π
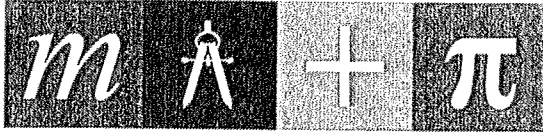# ASSIGNMENTS

Dear Future 6Y Math Students,

Congratulations on making it through the 5th grade school year! I look forward to working with you next year! The 6th grade math curriculum is a rigorous curriculum that builds on what you have learned this past year.

To help you keep your skills strong, I have several assignments for you to do over the course of the summer. These summer math assignments have not been created to torture you. It was actually created with the opposite intent. This was created to make you a math expert, especially as you prepare for next school year!

Each week you will be assigned a set of practice problems to complete. You may choose when to do it. You may work on the assignments in whichever way suits your style. You may do the problems for the week in one day or spread it out over the course of the week. **All I ask is that you do not leave the assignment until the week or even the day before school begins.** Trust me, you will NOT complete it! I have given you a suggested timeline to follow on the next page.

**You must show all of your work and the work must be done in pencil.** If you have any questions, please feel free to email me at any time.

Good luck and have a fabulous summer! I cannot wait to see you in August!

Mrs. DeNicola

denicolak@saseas.org
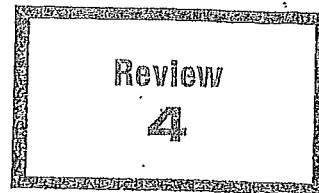
Name: _____

# Incoming 6Y Summer Math Packet

## Due Date:  Thursday, August 24th

## Expectations

- Please complete 2 assignments per week.  The guide below is for you to stay on top of your work over the summer break!
- Do NOT use a calculator!

| Suggested Date | Assignment | Rubric | | |
|---|---|---|---|---|
| Week 1 | Adding and Subtracting Decimals – Page 1 | 1 | 0.5 | 0 |
| June 5 – June 9 | Multiplying Decimals – Page 2 | 1 | 0.5 | 0 |
| Week 2 | Dividing Decimals – Page 3 | 1 | 0.5 | 0 |
| June 12 – June 16 | Interpreting Data – Page 4 | 1 | 0.5 | 0 |
| Week 3 | Geometric Ideas – Page 5 | 1 | 0.5 | 0 |
| June 19 – June 23 | Three Types of Angles – Page 6 | 1 | 0.5 | 0 |
| Week 4 | Adding and Subtracting Fractions – Page 7 | 1 | 0.5 | 0 |
| June 26 – June 30 | Adding Mixed Numbers – Page 8 | 1 | 0.5 | 0 |
| Week 5 | Subtracting Mixed Numbers – Page 9 | 1 | 0.5 | 0 |
| July 3 – July 7 | Multiplying Fractions – Page 10 | 1 | 0.5 | 0 |
| Week 6 | Multiplying Mixed Numbers – Page 11 | 1 | 0.5 | 0 |
| July 10 – July 14 | Problem Solving:  Strategies – Page 12 | 1 | 0.5 | 0 |
| Week 7 | Customary Measurement – Page 13 | 1 | 0.5 | 0 |
| July 17 – July 21 | Metric Measurement – Page 14 | 1 | 0.5 | 0 |
| Week 8 | Perimeter – Page 15 | 1 | 0.5 | 0 |
| July 24 – July 28 | Area of Squares and Rectangles – Page 16 | 1 | 0.5 | 0 |
| Week 9 | Ratio and Proportion – Page 17 | 1 | 0.5 | 0 |
| July 31 – August 4 | Fractions, Decimals, and Percents – Page 18 | 1 | 0.5 | 0 |
| **Students will be awarded 2 points for turning in packet on first day of school** | | Total Score: _____/20 | | |

# Adding and Subtracting Decimals

Find 1.7 + 2.45.

Find 36.57 − 4.6.

| Line up the decimal points. | Line up the decimal points. |
|---|---|
| $\begin{array}{r} \downarrow \\ 1.7 \\ +2.45 \end{array}$ $\begin{array}{r} 1 \\ 1.70 \\ +2.45 \\ \hline 4.15 \end{array}$ → Write zeros to show place value. | $\begin{array}{r} \downarrow \\ 36.57 \\ -4.6 \end{array}$ $\begin{array}{r} 5\ 15 \\ 3\cancel{6}.\cancel{5}7 \\ -4.60 \\ \hline 31.97 \end{array}$ Write zeros to show place value. |
| ↑ Place decimal point in answer. | ↑ Place decimal point in answer. |

Find each sum or difference.

1.  $\begin{array}{r} \downarrow \\ 2.65 \\ +13.30 \end{array}$

2.  $\begin{array}{r} \downarrow \\ 14.10 \\ -\ 3.05 \end{array}$

3.  $\begin{array}{r} 744 \\ +\ 36.2 \end{array}$

4.  $\begin{array}{r} 9 \\ -0.6 \end{array}$

5.  $\begin{array}{r} 8.97 \\ +66 \end{array}$

6.  $\begin{array}{r} 100 \\ -\ 0.22 \end{array}$

7.  $\begin{array}{r} 6.8 \\ +237.29 \end{array}$

8.  $\begin{array}{r} 0.5 \\ -0.23 \end{array}$

9. $15.4 - 8 =$ _____

10. $3 - 2.54 =$ _____

11. $1.34 + 4.1 =$ _____

12. $133.01 - 5.6 =$ _____

13. $448 + 1.75 + 80.3 =$ _____

14. $12.3 + 0.61 + 100 =$ _____

15. On the 3-days of their vacation, the Davis family traveled 417 mi, 45.3 mi, and 366.9 mi. How far did they travel all together?

_____

16. Etta bought a calculator for $15. Glenn found the same model for $9.79. How much more did Etta pay than Glenn did?

_____

Name _____

# Multiplying with Decimals

Find $4.3 \times 2.7$.

| Multiply as you would with whole numbers. | Count the number of decimal places in both factors. The total is the number of decimal places in the product. |
|---|---|
| $\begin{array}{r} 2 \\ 4.3 \\ \times 2.7 \\ \hline 301 \\ 860 \\ \hline 1161 \end{array}$ | $\begin{array}{rl} 4.3 & \leftarrow \quad 1 \text{ decimal place} \\ \times 2.7 & \leftarrow \quad + 1 \text{ decimal place} \\ \hline 11.61 & \leftarrow \quad 2 \text{ decimal places} \end{array}$ |

Find each product.

1.  $\begin{array}{r} 14 \\ \times 8.8 \\ \hline 112 \\ 1120 \end{array}$

2.  $\begin{array}{r} 1.6 \\ \times .9 \\ \hline \end{array}$

3.  $\begin{array}{r} 0.4 \\ \times 3.2 \\ \hline \end{array}$

4.  $\begin{array}{r} 0.05 \\ \times 0.3 \\ \hline \end{array}$

5.  $\begin{array}{r} 2.15 \\ \times 8.3 \\ \hline \end{array}$

6.  $\begin{array}{r} 3.3 \\ \times 0.12 \\ \hline \end{array}$

7.  $\begin{array}{r} 0.51 \\ \times 4.2 \\ \hline \end{array}$

8.  $\begin{array}{r} 1.35 \\ \times 13 \\ \hline \end{array}$

9. $23 \times 0.47 =$ _____

10. $0.9 \times 5 =$ _____

11. $168 \times 2.25 =$ _____

12. $0.8 \times 0.11 =$ _____

13. $20 \times 20.2 =$ _____

14. $4.9 \times 0.3 =$ _____

15. A roll of paper towels contained 250 sheets. Each sheet was 8.75 inches long. How long was the roll? _____

16. Tania bought 3 new sweaters. Each sold for $19.99. How much did she spend? _____

# Dividing with Decimals

Find 36.8 ÷ 16.

| ↓ | Place the decimal point. | 2.3 | |
|---|---|---|---|
| 2. | | 16)36.8 | |
| 16)36.8 | ← Think: 20)40 2 | −32 | Multiply 2 × 16. |
| | | 4 8 | Subtract. Bring down 8. |
| | Try 2 in the quotient. | −4 8 | Multiply 3 × 16. |
| | | 0 | Subtract. |

Find each quotient.

1. 
$$\frac{2.}{6)1\ 3\ .8}$$
−1 2

2. 6)1 3 1 . 4

3. 9)1 4 1 . 3

4. 5)3 8 8 . 5

5. 7)6.6 9 . 2

6. 2 8)2 6 3 . 2

7. 4 1)2 7 4 . 7

8. 7)3 4 . 2 3

9. 269.12 ÷ 8 = _____

10. 311.56 ÷ 4 = _____

11. 2,229.62 ÷ 46 = _____

12. 1,449.09 ÷ 81 = _____

13. A photographer bought 36 rolls of film for $136.44.
What was the price of one roll?            _____

14. Four students each ran 100 m in a 400-m relay race.
The team's total time was 49.44 sec. Find the average
time of each runner.            _____

3

# Interpreting Data

The bar graph shows the lengths in miles of the Great Lakes. Lengths of bars represent lengths of lakes.

Which is the shortest Great Lake?

The shortest lake is Lake Ontario.

**Lengths of the Great Lakes**

Superior  Michigan  Erie  Huron  Ontario
Lake
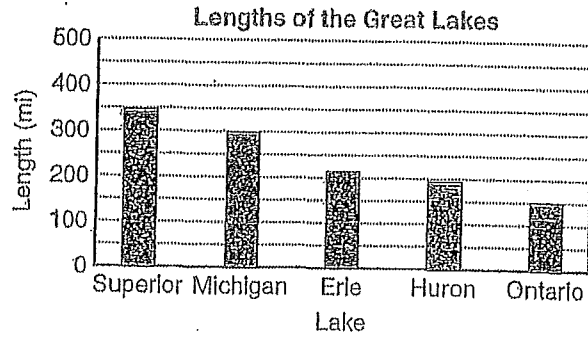
Use the graphs to answer each question.

1. How many archers scored 4 bull's eyes?

_____
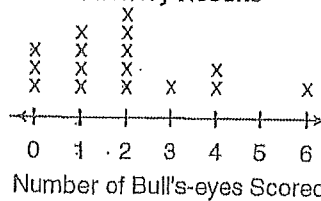
2. What was the most common number of bull's-eyes scored?

_____

**Archery Results**

```
                X
        X       X
        X       X
    X   X       X
    X   X       X    X       X X         X
  --+---+---+---+---+---+---+---+--
    0   1  ·2   3   4   5   6
```
Number of Bull's-eyes Scored

**Number of Houses Sold**

Jan Feb Mar Apr May Jun Jul Aug.
Month
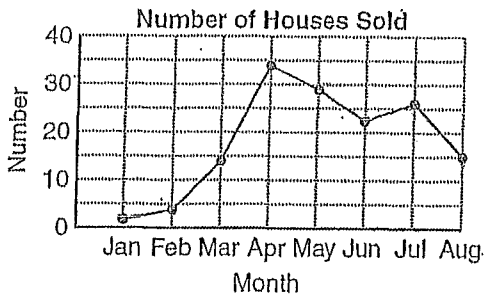
3. In which month were the most houses sold?

_____

4. In which month were about the same number sold as were sold in August?

_____

5. Which grades raised about the same amount for the school book drive?

_____

6. The school's goal was to raise $1,500. About how much did they raise in all?

_____

**School Book Fund Drive**

1st  2nd  3rd  4th  5th
Grade
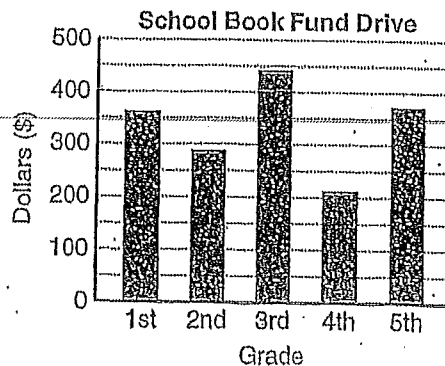
# Geometric Ideas

- A **line** is a straight path of points that goes on forever in two directions. Examples: $\overleftrightarrow{AS}$, $\overleftrightarrow{GK}$.

- A **ray** is a part of a line with one endpoint, extending forever in only one direction. Examples: $\overrightarrow{FD}$, $\overrightarrow{FB}$.

- A **line segment** is part of a line with two endpoints. Examples: $\overline{CF}$, $\overline{MQ}$.

- A **midpoint** is the point halfway between the endpoints of a line segment. Example: Point $L$ is halfway between points $J$ and $M$ on $\overline{JM}$.

- **Congruent line segments** are line segments that have the same length. Example: $\overline{QR}$ is congruent to $\overline{ST}$.

- **Parallel lines** are in the same plane but do not intersect. Example: $\overleftrightarrow{AS}$ is parallel to $\overleftrightarrow{BT}$.

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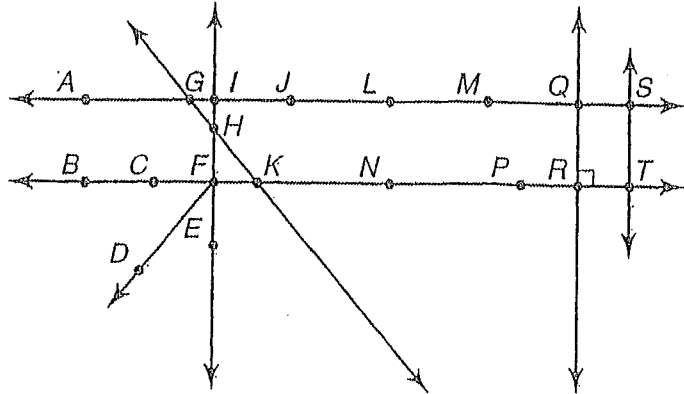
Use the diagram at the right. Name the following.

**1.** three line segments

_____

**2.** two parallel lines

_____

**3.** two lines that intersect $\overleftrightarrow{DT}$

_____

**4.** two congruent line segments

_____

**5.** two lines perpendicular to $\overleftrightarrow{BR}$

_____

**6.** two midpoints of line segments

_____
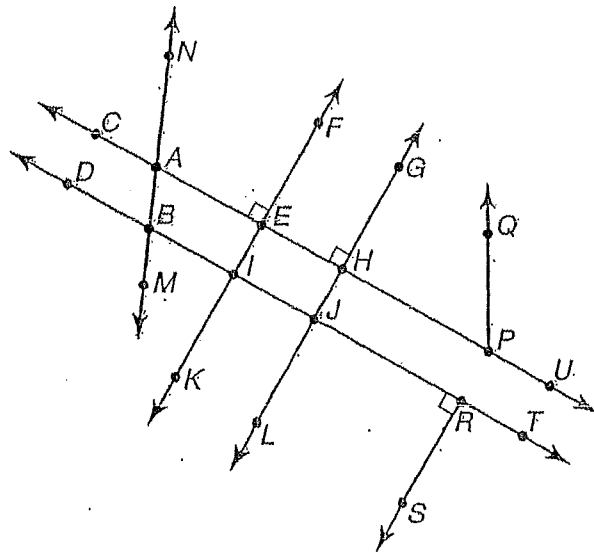
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# Three Types of Angles
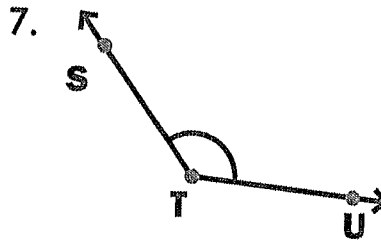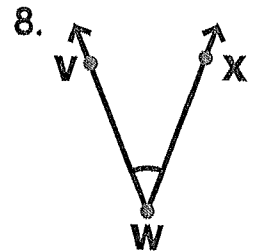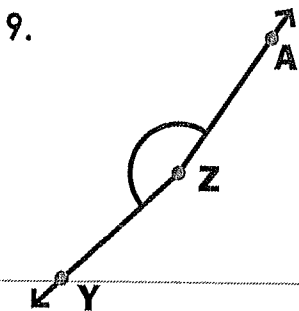
Label each angle as acute, obtuse, or right.

1.

2.

3.

4.

_____

_____

_____

_____

5.

6.

7.

8.

_____

_____

_____

_____

9.

10.

11.

12.

_____

_____

_____

_____
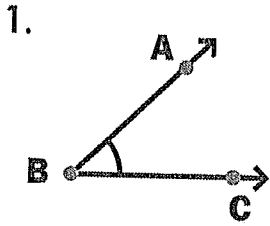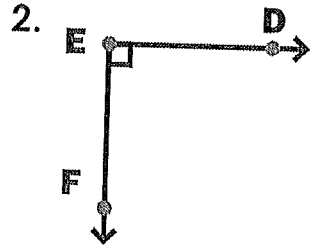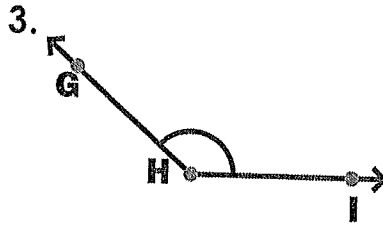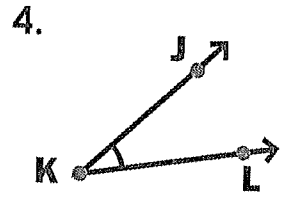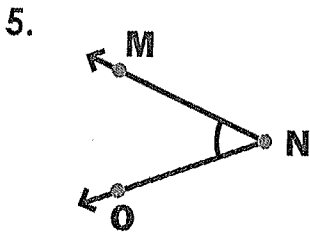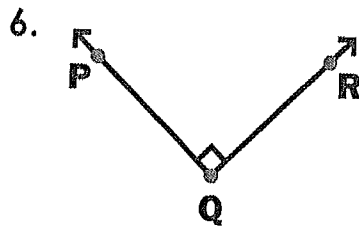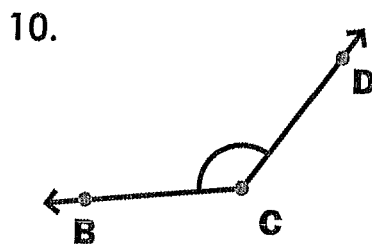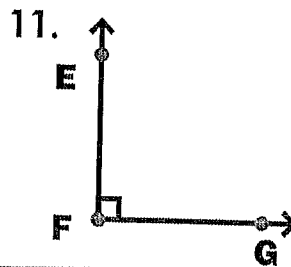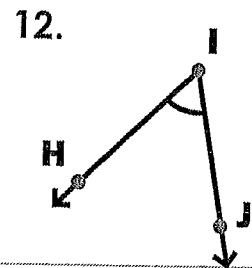
# Adding and Subtracting Fractions

Find $\frac{2}{3} + \frac{1}{6}$.

Find $\frac{1}{4} - \frac{1}{5}$.

| 3 | ⑥ | 9 | 12 | 15 | Multiples of 3 |
| ⑥ | 12 | 18 | 24 | 30 | Multiples of 6 |

The least common denominator is 6.

Write equivalent fractions.

$\frac{2}{3} = \frac{4}{6}$

Add.

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

$\frac{5}{6}$

| 4 | 8 | 12 | 16 | ⑳ | Multiples of 4 |
| 5 | 10 | 15 | ⑳ | 25 | Multiples of 5 |

The least common denominator is 20.

Write equivalent fractions.

$\frac{1}{4} = \frac{5}{20}$

Subtract.

$-\frac{1}{5} = \frac{4}{20}$

$\frac{1}{20}$

Find each sum or difference.

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

| 4 | | | |
| 3 | | | |

2. $\frac{11}{12} - \frac{5}{6} =$ _____

| 12 | | | |
| 6 | | | |

3. $\frac{1}{3} + \frac{4}{9} =$ _____

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

5. $\frac{11}{12} - \frac{5}{12} =$ _____

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

7. $\frac{1}{3} - \frac{1}{5} =$ _____

8. $\frac{3}{8} - \frac{1}{6} =$ _____

9. $\frac{3}{5} + \frac{3}{10} =$ _____

10. $\frac{1}{2} + \frac{2}{5} =$ _____

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

12. Meg practiced the piano for $\frac{5}{12}$ hr. She did homework for $\frac{3}{4}$ hr. How much longer did she do homework than she practiced the piano?

_____

⑦

# Adding Mixed Numbers

To add mixed numbers, you can add the fractional parts to the whole number parts, and then simplify.

Find $2\frac{2}{4} + 3\frac{1}{4}$.

The fractions have a common denominator. Add the fractions. Then add the whole numbers.

$$2\frac{2}{4}$$
$$+3\frac{1}{4}$$
$$\overline{5\frac{3}{4}}$$

Find $3\frac{2}{3} + 4\frac{1}{9}$.

Write equivalent fractions with the LCD.

$$3\frac{2}{3} = 3\frac{6}{9}$$
$$+4\frac{1}{9} = 4\frac{1}{9}$$

Add the whole numbers. Add the fractions. Simplify if possible.

$$3\frac{6}{9}$$
$$+4\frac{1}{9}$$
$$\overline{7\frac{7}{9}}$$

Find $4 + 3\frac{3}{5}$.

Add the whole numbers; then add the fraction.

$$4$$
$$+3\frac{3}{5}$$
$$\overline{7\frac{3}{5}}$$

Find each sum. Simplify your answer.

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

2. $4\frac{2}{3} + 1\frac{1}{6} =$ _____

3. $5\frac{3}{5} + \frac{3}{10} =$ _____

4. $8\frac{5}{8} + 1\frac{5}{12} =$ _____

5. $6\frac{1}{4} + 11\frac{3}{8} =$ _____

6. $7 + 8\frac{1}{3} =$ _____

7. In 2001, the men's indoor pole vault record was $20\frac{1}{6}$ ft. The women's record for the indoor pole vault was $15\frac{5}{12}$ ft. What is the combined height of the two records? _____

8. **Writing in Math** How high is a stack of library books if one book is $1\frac{3}{8}$ in. high, the second book is $1\frac{5}{6}$ in. high, and the third is $2\frac{1}{3}$ in. high? Explain how you solved this problem.

_____

_____

_____

Name _____

# Subtracting Mixed Numbers

Subtract $3\frac{2}{3} - 2\frac{1}{6}$.

| Write equivalent fractions. | Subtract the fractions. | Subtract the whole numbers. Simplify. |
|---|---|---|
| $3\frac{2}{3} = 3\frac{4}{6}$ $-2\frac{1}{6} = 2\frac{1}{6}$ The LCD of 3 and 6 is 6. | $3\frac{2}{3} = 3\frac{4}{6}$ $-2\frac{1}{6} = 2\frac{1}{6}$ $\frac{3}{6}$ | $3\frac{2}{3} = 3\frac{4}{6}$ $-2\frac{1}{6} = 2\frac{1}{6}$ $1\frac{3}{6} = 1\frac{1}{2}$ |

Find each difference. Simplify.

1.  $3\frac{1}{3} = 3\frac{5}{15}$
    $-2\frac{1}{5} = 2\frac{3}{15}$

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

3.  $3\frac{2}{3}$
    $-2\frac{1}{3}$

4.  $6\frac{5}{8}$
    $-2\frac{1}{8}$

5.  $3\frac{7}{10}$
    $-1\frac{2}{5}$

6.  $7\frac{7}{8}$
    $-2\frac{3}{4}$

7.  $3\frac{3}{4}$
    $-2\frac{1}{6}$

8.  $5\frac{5}{6}$
    $-1\frac{1}{8}$

9.  $2\frac{2}{3} - 1\frac{1}{4} =$ _____

10. $4\frac{3}{4} - 4\frac{2}{5} =$ _____

11. $2\frac{1}{3} - 1\frac{2}{3} =$ _____

12. $4\frac{4}{9} - 3\frac{2}{3} =$ _____

13. $3\frac{3}{8} - 2\frac{5}{6} =$ _____

14. $5\frac{1}{3} - 2\frac{5}{8} =$ _____

15. Greg found two rocks for his collection. One weighed $4\frac{1}{4}$ lb
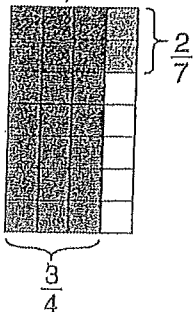    and the other weighed $2\frac{7}{8}$ lb. Find the difference in weights. _____

9

# Multiplying Fractions

Find $\frac{3}{4} \times \frac{2}{7}$.

| One Way | Another Way | Simplify First |
|---|---|---|
| Draw a picture. Simplify if possible. | Multiply the numerators and denominators. Simplify if possible. | Find the GCF of any numerator and any denominator. |

**One Way**

Draw a picture. Simplify if possible.

$$\left.\begin{array}{c}\end{array}\right\} \frac{2}{7}$$

$$\underbrace{\phantom{xxxx}}_{\frac{3}{4}}$$

6 of the 28 squares have overlapping shading.

So, $\frac{3}{4} \times \frac{2}{7} = \frac{6}{28}$.

Simplify $\frac{6}{28}$ to $\frac{3}{14}$.

**Another Way**

Multiply the numerators and denominators. Simplify if possible.

$$\frac{3}{4} \times \frac{2}{7}$$
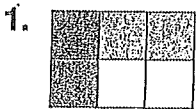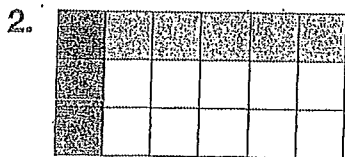$$= \frac{3 \times 2}{4 \times 7} = \frac{6}{28}$$
$$= \frac{3}{14}$$

**Simplify First**

Find the GCF of any numerator and any denominator.

The GCF of 2 and 4 is 2. Divide 2 and 4 by the GCF.

$$\frac{3}{\overset{}{\underset{2}{4}}} \times \frac{\overset{1}{2}}{7} = \frac{3}{14}$$

Write an equation for each picture.

1.

_____

2.

_____

Find each product. Simplify if possible.

3. $\frac{6}{8} \times \frac{1}{3} =$ _____

4. $\frac{5}{6} \times \frac{7}{10} =$ _____

5. $\frac{4}{5} \times \frac{3}{8} =$ _____

6. $\frac{1}{2} \times \frac{4}{9} =$ _____

7. **Number Sense** Can you simplify before multiplying $14 \times \frac{25}{27}$? Explain.

_____

_____

# Multiplying Mixed Numbers

## How to find the product of two mixed numbers:

Find $3\frac{2}{3} \times 4\frac{1}{2}$.

### Step 1

Estimate by rounding.

$$3\frac{2}{3} \times 4\frac{1}{2}$$
$$\downarrow \qquad \downarrow$$
$$4 \times 5 = 20$$

Then write each mixed number as an improper fraction.

$$3\frac{2}{3} \times 4\frac{1}{2}$$
$$\downarrow \qquad \downarrow$$
$$\frac{11}{3} \times \frac{9}{2}$$

### Step 2

Look for common factors and simplify.

$$\frac{11}{\overset{1}{\cancel{3}}} \times \frac{\overset{3}{\cancel{9}}}{2} = \frac{11}{1} \times \frac{3}{2}$$

### Step 3

Multiply. Write the product as a mixed number.

$$\frac{11}{1} \times \frac{3}{2} = \frac{33}{2} = 16\frac{1}{2}$$

$16\frac{1}{2}$ is close to 20, so the answer is reasonable.

---

Find each product. Simplify if possible.

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

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

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

4. $1\frac{2}{5} \times 3\frac{1}{4} =$ _____

5. $4\frac{1}{2} \times 16 =$ _____

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

7. **Number Sense** Is $2 \times 17\frac{5}{6}$ greater than or less than 36? Explain.

_____

_____

_____

_____

Name _____

# Problem Solving: Strategies

| | Printers | Computers | Check |
|---|---|---|---|

A computer store has 25 printers and computers.
There are 7 more printers than computers.
How many of each are there?

| | Printers | Computers | Check |
|---|---|---|---|
| Guess 1 | 20 | 5 | 20 − 5 = 1 |
| Guess 2 | 14 | 11 | 14 − 11 = 3 |
| Guess 3 | 16 | 9 | 16 − 9 = 7 √ |

Solution: There are 16 printers and 9 computers.

**Problem Solving Strategies**
- Act It Out
- Draw a Picture
- Look For a Pattern
- Try, Check, and Revise
- Make an Organized List
- Make a Table
- Solve a Simpler Problem
- Work Backward

Use any strategy to solve.

1. At the veterinarian's office, Terri learned that her dog weighed
   4 times as much as her cat. Together the pets weighed 40 lbs.
   How much did the dog weigh?   _____

2. Yasmin arrived home from play practice at 4:25 P.M. The walk
   home took 15 minutes. Practice began 20 minutes after the
   final bell and lasted for a half hour. When did school end?   _____

3. Vanessa, Diego, Rose and Randy
   stood in line for lunch. Rose was just
   behind Vanessa. Diego was not next
   to Rose or Randy. Write the line order.   _____

4. Students played dodge ball and volleyball for 45 minutes.
   They played dodge ball for 11 more minutes than they played
   volleyball. How long did they play dodge ball?   _____

5. Mr. Jones has 4 shirts, 2 ties, and
   3 pair of pants. How many days in
   a row can he wear a different outfit?   _____
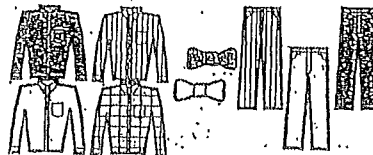
Name _____

# Customary Measurement

## Units of Length

| | |
|---|---|
| foot (ft) | 1 ft = 12 in. |
| yard (yd) | 1 yd = 3 ft |
| | 1 yd = 36 in. |
| mile (mi) | 1 mi = 5,280 ft |
| | 1 mi = 1,760 yd |

## Units of Capacity

| | |
|---|---|
| cup (c) | 1 c = 8 fluid ounces (oz) |
| pint (pt) | 1 pt = 2 c |
| quart (qt) | 1 qt = 2 pt |
| gallon (gal) | 1 gal = 4 qt |

### How to change from one unit of measurement to another:

To change from larger units to smaller units in the customary system, you have to multiply.

120 yd = _____ ft

1 yd = 3 ft

120 × 3 ft = 360 ft

120 yd = 360 ft

To change from smaller units to larger ones, you have to divide.

256 oz = _____ c

1 c = 8 oz

256 ÷ 8 = 32

256 oz = 32 c

Complete.

1. 36 in. = _____ ft

2. 4 qt = _____ c

3. 5 lb = _____ oz

4. 39 ft = _____ yd

5. 1.5 mi = _____ ft

6. 3.5 gal = _____ qt

7. 2 T = _____ lb

8. 16 pt = _____ qt

9. 64 oz = _____ lb

10. 3 yd = _____ in.

11. 4 gal = _____ pt

12. 55 yd = _____ ft

13. 6.5 lb = _____ oz

14. 20 pt = _____ gal

15. 4.5 qt = _____ c

16. 205 yd = _____ ft

17. **Reasoning** A vendor at a festival sells soup for $1.25 per cup or $3.75 per quart. Which is the better buy?

_____

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# Metric Measurement

**Changing from one metric unit to another:**

To change from a larger unit to a smaller unit, multiply by a power of ten.

$$3.8 \text{ L} = \underline{\hspace{2cm}} \text{ mL}$$

A liter is a larger unit than a milliliter. To change from liters to milliliters, multiply.

$$1 \text{ L} = 1,000 \text{ mL}$$
$$3.8 \times 1,000 = 3,800$$
$$3.8 \text{ L} = 3,800 \text{ mL}$$

To change from a smaller unit to a larger unit, divide by a power of ten.

$$100 \text{ m} = \underline{\hspace{2cm}} \text{ km}$$

The meter is a smaller unit than the kilometer. To change from meters to kilometers, divide.

$$1,000 \text{ m} = 1 \text{ km}$$
$$100 \div 1000 = 0.1$$
$$100 \text{ m} = 0.1 \text{ km}$$

Name the most appropriate metric unit for each measurement.

1. mass of a cow

2. length of a carrot

3. capacity of a thimble

_____

_____

_____

Complete.

4. $45 \text{ g} = \underline{\hspace{2cm}} \text{ mg}$

5. $3450 \text{ mL} = \underline{\hspace{2cm}} \text{ L}$

6. $4.5 \text{ m} = \underline{\hspace{2cm}} \text{ mm}$

7. $1.68 \text{ L} = \underline{\hspace{2cm}} \text{ mL}$

8. $28 \text{ cm} = \underline{\hspace{2cm}} \text{ mm}$

9. $7,658 \text{ g} = \underline{\hspace{2cm}} \text{ kg}$

10. $600 \text{ cm} = \underline{\hspace{2cm}} \text{ m}$

11. $5,000 \text{ mg} = \underline{\hspace{2cm}} \text{ g}$

12. $5.1 \text{ km} = \underline{\hspace{2cm}} \text{ m}$

13. $1.780 \text{ L} = \underline{\hspace{2cm}} \text{ mL}$

14. $0.780 \text{ L} = \underline{\hspace{2cm}} \text{ mL}$

15. $4,300 \text{ m} = \underline{\hspace{2cm}} \text{ km}$

16. $9,000 \text{ cm} = \underline{\hspace{2cm}} \text{ m}$

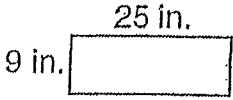17. $8,000 \text{ mg} = \underline{\hspace{2cm}} \text{ g}$

18. **Reasoning** It is recommended that people have 1 g of calcium each day. How many milligrams of calcium is that?
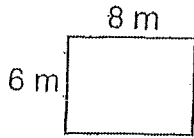
_____

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Name _____

# Perimeter
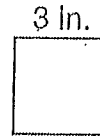
**Perimeter** is the distance around a shape.

| | |
|---|---|
| You can add the lengths of all the sides or you can multiply the sum of the length and the width by 2 to find the perimeter of a rectangle. | If only one side of a figure is given, then all sides have the same length. |

25 in.

9 in.

$p = 25$ in. $+ 9$ in. $+ 25$ in. $+ 9$ in. $= 68$ in.
or $p = 2 \times (25$ in. $+ 9$ in.$) = 68$ in.

5 cm

$p = 5$ cm $+ 5$ cm $+ 5$ cm $+ 5$ cm $= 20$ cm
or $p = 4 \times 5$ cm $= 20$ cm

**1.** Find the perimeter of the rectangle.

8 m

6 m

$p =$ ___ $+$ ___ $+$ ___ $+$ ___ $=$ ___ m

**2.** Find the perimeter of the square.

3 in.

$p =$ ___ $\times$ ___ $=$ ___ in.

Find the perimeter of each figure.

**3.**

1 ft

3 ft

_____

**4.** 2 m    3 m

4 m

_____

**5.**

12 in.

_____

**6.**

4.5 yd

_____

**7.**

$2\frac{1}{4}$ in.

$1\frac{1}{4}$ in.

_____

**8.** 24 cm

20 cm    12 cm

14 cm

_____

**9.** 4 in.    5 in.

4 in.    7 in.

_____

**10.**

8 m

_____
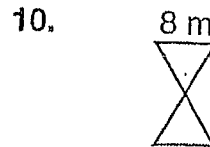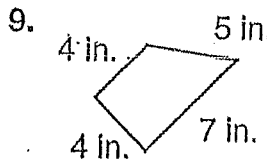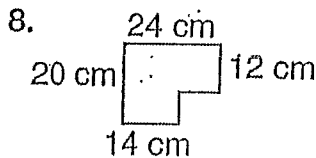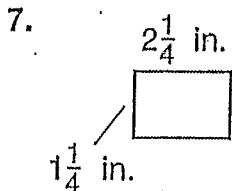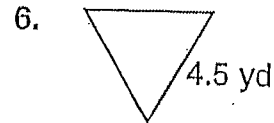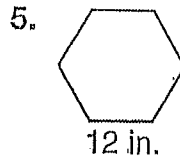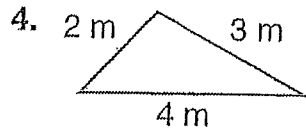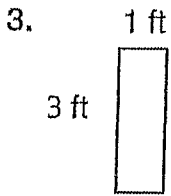
**11.** A flower garden is in the shape of an equilateral triangle.

Each side measures $15\frac{3}{8}$ ft. What is the garden's perimeter? _____

15

# Area of Squares and Rectangles

You can use formulas to find the area of a square or rectangle.

Find the area of a square that is 7.2 m on each side.

Use the formula $A = s^2$.

$A = (7.2)^2$

$A = 51.84$

The area is 51.84 m².

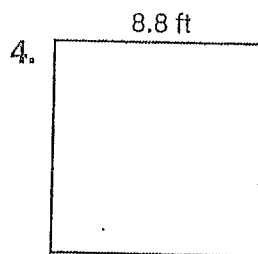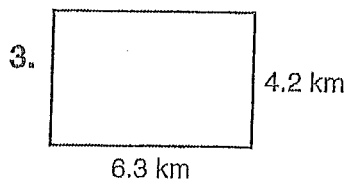Find the area of a rectangle with a length ($l$) of 4 cm and a width ($w$) of 12 cm.
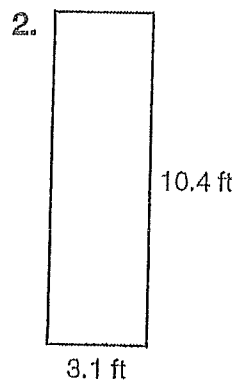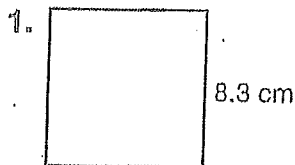
Use the formula $A = l \times w$.

$A = 4 \times 12$

$A = 48$

The area is 48 cm².

Find the area of each figure.

1.

8.3 cm

2.

10.4 ft
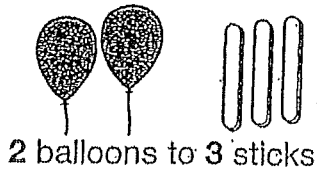
3.1 ft

3.

4.2 km

6.3 km

4.

8.8 ft

5. **Reasoning** What is the length of a rectangle that has an area of 120 ft² and a width of 8 ft?

_____

6. **Number Sense** What is the area of a square that is 12.4 cm on each side?

_____

# Ratio and Proportion

| You can use **ratios** to compare two quantities. | A statement that two ratios are equal is called a **proportion**. |
|---|---|
| 2 balloons to 3 sticks | $\dfrac{1 \text{ balloon}}{2 \text{ sticks}} = \dfrac{2 \text{ balloons}}{4 \text{ sticks}}$ |
| You can write ratios as: | |
| words        2 to 3 | $\dfrac{1}{2} = \dfrac{1 \times 2}{2 \times 2} = \dfrac{2}{4}$ |
| with a colon  2:3 | |
| as a fraction  $\dfrac{2}{3}$ | $\dfrac{1}{2} = \dfrac{2}{4}$ is a proportion. |

Write each ratio. Use words, a colon, or a fraction.

**1.** Write the ratio of squares to circles.

**2.** The Computer Club has 20 girls and 15 boys. Write the ratio of girls to boys in the club.

_____

_____

Tell if the ratios form a proportion. Write yes or no.

**3.** $\dfrac{3}{4}$ $\dfrac{9}{12}$ _____

**4.** $\dfrac{1}{3}$ $\dfrac{2}{9}$ _____

**5.** $\dfrac{3}{5}$ $\dfrac{6}{10}$ _____

**6.** $\dfrac{4}{6}$ $\dfrac{8}{18}$ _____

Complete each table so that all ratios are equal.

**7.**

| 3 | 6 | 9 | 12 |
|---|---|---|---|
| 5 |   |   |    |

**8.**

| 2 |    |    |    |
|---|----|----|----|
| 7 | 21 | 42 | 63 |

**9.**

| 4 |    | 20 |    |
|---|----|----|----|
| 5 | 10 |    | 50 |

**10.** The ratio of the width to the length of a painting is 3 to 7. If the painting is 42 in. long, how wide is it?
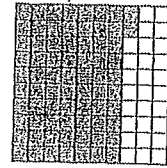
_____

**11.** The ratio of the number of moons the planet Neptune has to the number that Saturn has is 4 to 9. Saturn has 18 moons. How many moons does Neptune have?

_____

# Fractions, Decimals, and Percents

Fractions, decimals, and percents all name parts of a whole. The grid to the right has 72 out of 100 squares shaded.

72 out of 100 are shaded. As a fraction, that is $\frac{72}{100}$. As a decimal, that is 0.72. As a percent, that is 72%.

Write 40% as a fraction and decimal.

$40\% = \frac{40}{100} = 0.40$

The decimal point moves two places to the left.

Write 0.47 as a fraction and percent.

$0.47 = \frac{47}{100} = 47\%$

Write 0.3% as a fraction and decimal.

$0.3\% = \frac{0.3}{100} = 0.003$

The decimal point moves two places to the left. Fill in any spaces with zeros.

Write $\frac{3}{4}$ as a decimal and percent.

You can use a proportion:

$\frac{3}{4} = \frac{n}{100}$

$\frac{4n}{4} = \frac{300}{4}$

$n = 75$

So, $\frac{3}{4} = 0.75 = 75\%$.

Write each in two other ways.

1. $\frac{2}{10}$ _____ ; _____

2. $\frac{23}{100}$ _____ ; _____

3. $\frac{7}{10}$ _____ ; _____

4. 97% _____ ; _____

5. 16% _____ ; _____

6. 52% _____ ; _____

7. 0.04 _____ ; _____

8. 0.35 _____ ; _____

9. **Number Sense** Sheila got 87% of the problem correct. Patrick got $\frac{91}{100}$ correct. Who scored higher?

_____