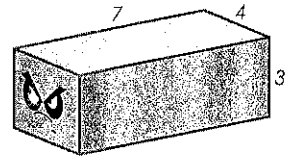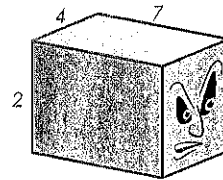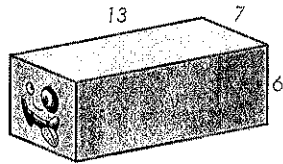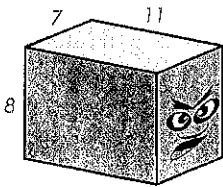SURFACE AREA SHOWDOWN

Determine the winner of each boxing match by finding the surface area of each box. The box with the larger surface area is the winner. Write the surface area under each box. All measurements are given in inches. Be sure to show your work.

Remember:
Surface area = 2 x [(length x width) + (length x height) + (height x width)]

BOXING **1** MATCH

442 sq. in   _____ sq. in

L x W = **77**
L x H = **88**
H x W = **56**
          ‾‾‾‾
          221

221 x 2 = 442

BOXING **2** MATCH

_____ sq. in   _____ sq. in

BOXING **3** MATCH

_____ sq. in   _____ sq. in

BOXING **4** MATCH
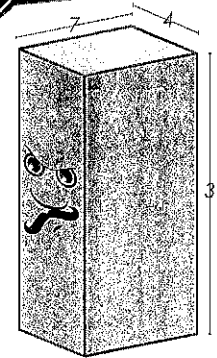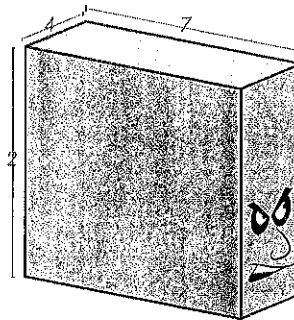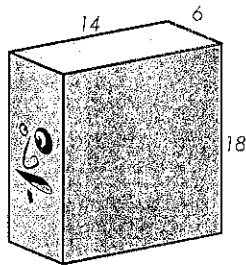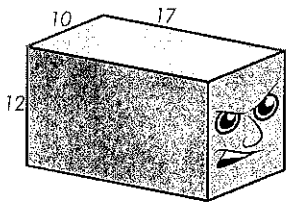
_____ sq. in   _____ sq. in

Algebra Action!
Value of The Expression

A variable represents the unknown number in the expression or equation.
For example, $4 \times t = 12$. The letter " t " represents the number which multiplies
by 4 to equal 12.

An expression in math is a sentence containing numbers and the operations. Below are
examples of expressions:

$2 + 3$ $17 - 16 + 2$ $\dfrac{2}{5}x$

6 $(3 \times 5) - (6 \times 2)$ $y - 20$

We can find the value of the expression $7 + y$ by placing the variable with the number.
For example: if $y = 5$

    1. Put 5 in the place of y $7 + y$

                                   $7 + 5$

    2. Calculate it $7 + 5 = 12$

Find the value of the expressions below. Show your work.

$17 - h$	$4 + y + 7$	$(12 - b) + 5$
If h = 4	If y = 8	If b = 3

$(5 \times m) + 1$	$(4 \times p) \times 2$	$20 + (6 \times w)$
If m = 6	If p = 10	If w = 3

Find The Missing *Numerator* or *Denominator*

You can multiply a fraction with a fraction by multiplying the numerator with the numerator and the denominator with the denominator.

Example: $\dfrac{1}{2}$ x $\dfrac{6}{4}$ ← numerator
← denominator

$$\dfrac{1}{2} \times \dfrac{6}{4} = \dfrac{1 \times 6}{2 \times 4} = \dfrac{6}{8}$$

Write down the missing numerators or denominators in the multiplication equations below.

$\dfrac{1}{2}$ x $\dfrac{1}{4}$ = $\dfrac{1}{\bigcirc}$

$\dfrac{1}{5}$ x $\dfrac{3}{7}$ = $\dfrac{3}{\bigcirc}$

$\dfrac{1}{2}$ x $\dfrac{3}{2}$ = $\dfrac{\bigcirc}{4}$

$\dfrac{8}{9}$ x $\dfrac{5}{6}$ = $\dfrac{\bigcirc}{54}$

$\dfrac{\bigcirc}{3}$ x $\dfrac{1}{5}$ = $\dfrac{7}{15}$

$\dfrac{\bigcirc}{2}$ x $\dfrac{7}{8}$ = $\dfrac{14}{16}$

$\dfrac{6}{9}$ x $\dfrac{2}{\bigcirc}$ = $\dfrac{12}{36}$

$\dfrac{5}{6}$ x $\dfrac{8}{\bigcirc}$ = $\dfrac{40}{60}$

Challenge

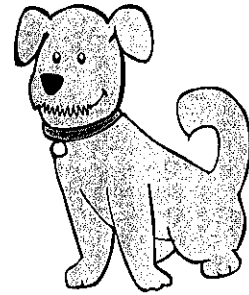$\dfrac{\bigcirc}{4}$ x $\dfrac{3}{\bigcirc}$ = $\dfrac{15}{16}$

$\dfrac{\bigcirc}{5}$ x $\dfrac{4}{\bigcirc}$ = $\dfrac{28}{25}$

It All Adds Up!

Let's put all your consumer math skills to the test!

Each month, Susie stocks up on pet supplies for her dog, Barksalot. See if you can calculate Susie's monthly expenses for June, July, August, and September. Keep your work organized in the space below each problem.

1. In June, Susie buys a dozen cans of Dog's Dinner dog food at $1.89 per can. She also buys two bags of 'Dem Bones dental chews that each cost $12.69, and a new toy for $10.25. She pays sales tax at a rate of 7.25%. What is her total cost for the month of June?

2. In July, the weather is especially hot, so Susie buys a doggie sprinkler toy for $39.95. Barksalot also needs a new collar. The collar costs $8.00. She buys another dozen cans of Dog's Dinner dog food, as well as a new bottle of flea shampoo for $9.99. No prices have changed since June, and the sales tax remains the same. What is the total amount of her expenses in July?

3. In August, Barksalot needs a haircut. A trip for Barksalot to go to Perfect Pet's doggie day spa costs Susie $79.50. Susie also decides to treat her pooch to a big, tasty bone for $10.50. She buys another dozen cans of Dog's Dinner dog food, only this month, the cans are on sale for 20 percent off the regular price of $1.89 per can. Given that the sales tax rate has stayed the same, how much does Susie spend on pet expenses in August?

4. In September, it's time for Barksalot to get his annual checkup at the vet. Barksalot needs to get his teeth brushed for $50, a rabies booster vaccination for $49, and an anti-flea treatment for $18. Susie has a coupon that gives her a discount of 15 percent off the vaccination. There's no sales tax. What will be the total bill for Barksalot's visit to the vet?

FORMULAS FOR THE CIRCLE

There are five major measurements for a circle. If we know some of them they can be used to find the others. The measurements are:

Area (A) The space that is inside a circle
Circumference (C) The distance around a circle
Diameter (d) The length of a straight line going through the center of a circle
Radius (r) Half the diameter
Pi (π) The ratio of the circle's circumference to its diameter. It is the same number for all circles. It is an irrational number, meaning the decimals go on infinitely. It can be rounded to 3.14.

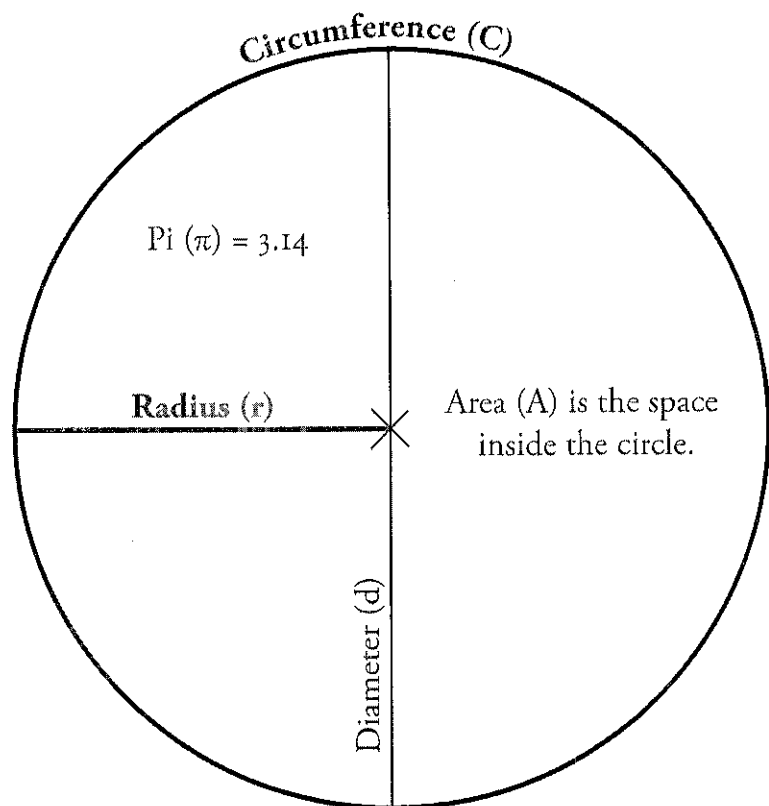The main formulas for finding a circle's measurements are:

$$A = \pi r^2$$

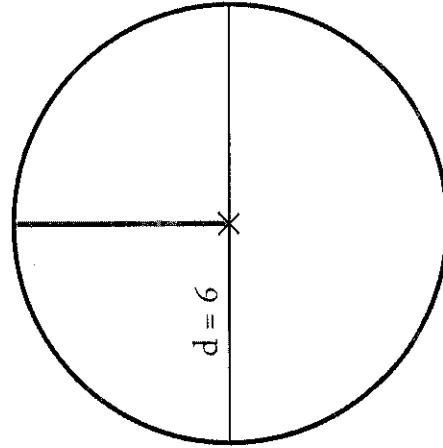$$C = \pi d \quad or \quad C = 2\pi r$$

$$d = 2r \quad or \quad d = C/\pi$$

$$r = d/2 \quad or \quad r = \sqrt{(A/\pi)}$$

$$\pi = C/d = 3.14...$$

Circumference (C)

Pi (π) = 3.14

Radius (r)

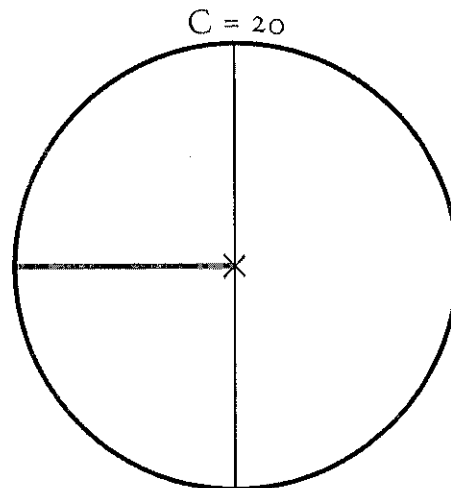Area (A) is the space inside the circle.
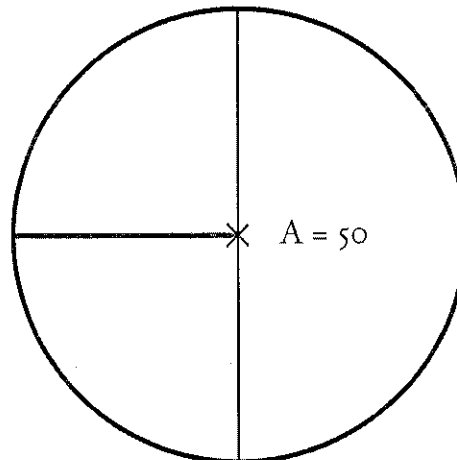
Diameter (d)

PROBLEMS

Find the radius, circumference and area of this circle. Round your answers to the nearest hundredth.

d = 6

Find the radius, diameter and area of this circle. Round your answers to the nearest hundredth.

C = 20

Find the radius, diameter and circumference of this circle. Round your answers to the nearest hundredth.

A = 50

Algebraic Expressions

Simplify the following expressions.

1.) $5a + 6a =$

2.) $3a + a =$

3.) $8a - 3a =$

4.) $10a - 2a =$

5.) $9a + 4a =$

6.) $11a - 7a =$

7.) $4b + 3b =$

8.) $12b - 6b =$

9.) $5b + 9b =$

Complete the following expressions.

1.) $12 \times 3 - 5 + 4 =$

2.) $4 + 7 \times 2 - 8 =$

3.) $5 - 7 + 2 \times 10 =$

4.) $15 \div 3 + 8 \times 5 =$

5.) $11 \times 3 - 12 \div 4 =$

6.) $5 + 9 - 16 \div 2 =$

Combine like terms to simplify the following expressions.

1.) $3a(a + 4) - 2a + 7 =$

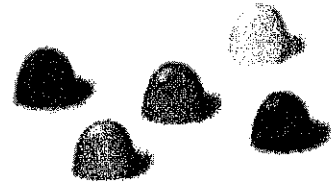2.) $5a + 3a - 15 \div 3 =$

3.) $4(3 + 9) + 10a - 4a =$

4.) $(21 \div 7)(4a + a) - 12 =$

5.) $17 + 4(3 + a) - a =$

6.) $10a - 4a + 27 \div 3 =$

Delicious Decimals
round and compare

Use the greater than, less than, and equal to symbols (>, <, =) to compare each set of decimals.
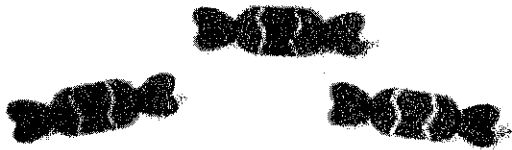
1. 21.070 [=] 21.07   2. 784.15 [ ] 13.064

3. 4.863 [ ] 238.479   4. 32.4 [ ] 32.41

5. 0.002 [ ] .001   6. 34.578 [ ] 46.2

Round each decimal to the given place.

1. round 782.164 to the nearest tenth _____ 782.2 _____

2. round 3.004 to the nearest whole number _____

3. round 943.492 to the nearest tenth _____

4. round 1.209 to the nearest hundredth _____

5. round 40.489 to the nearest whole number _____

Rounding off to a decimal place is like giving a number a little trim. Round each decimal off to the place shown.
Remember, if the number you are rounding off is 5 or more, round up. If it is 4 or less, round down.

Barber Shop #1 Round Off
Tenths & Hundredths

Place Value Guide

4	.	9	2	4
ones		tenths	hundredths	thousandths

Tenths

56.56321

56.6

450.91365

_____

18.59452

_____

2.43125

_____

Hundredths

12.29531

12.30

25.12546

_____

82.98406

_____

61.23995

_____

Mixed

11.25631

11.3

Tenths

164.25981

_____

Hundredths

20.28315

_____

Tenths

1.99529

_____

Hundredths

Find the Ratios

A ratio is the comparison between two or more numbers.
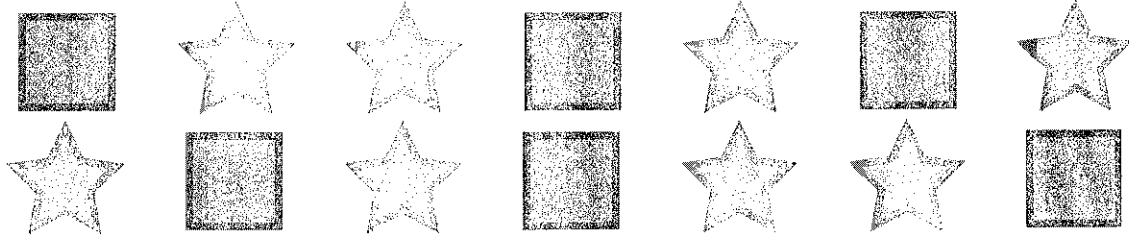
Look at the example above. There are six squares and eight stars, so the ratio of squares to stars are 6 to 8 or **6:8**. We are also able to say that the ratio of stars to squares is 8 to 6 or **8:6**.

We can simplify the ratio by finding the biggest common number and divide it by both numbers. The number of stars and squares is divisible by two. So **6:8 = 3:4**, and **8:6 = 4:3**.
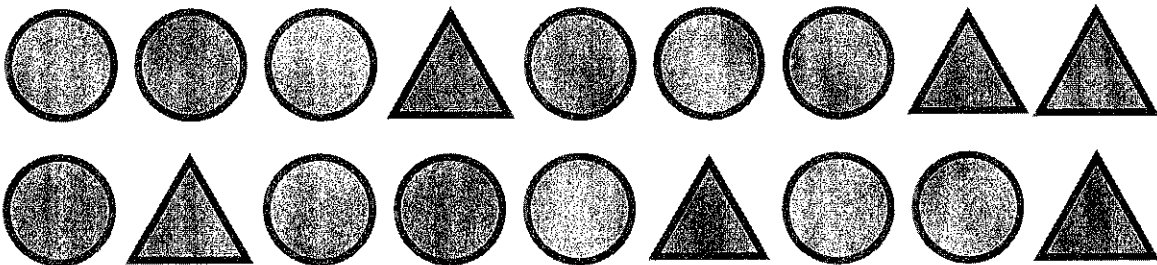
Answer the questions below.

1) What is the ratio of stars to squares? _____ : _____

2) What is the ratio of circles to triangles? _____ : _____

3) What is the ratio of circles to triangles simplified? _____ : _____

4) What is the ratio of triangles to circles? _____ : _____

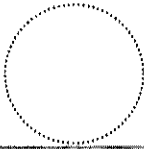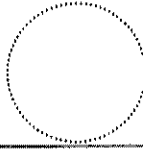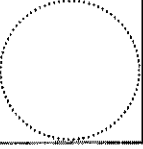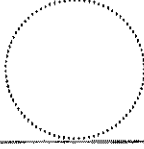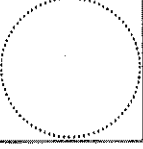5) What is the ratio of triangles to circles simplified? _____ : _____
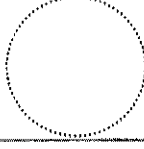
6) What is the ratio of circles to triangles simplified? _____ : _____

SKILLS PRACTICE 3

MIXED + IMPROPER FRACTIONS

For each of the following fractions, give them the appropriate label and rewrite them in the alternate form. Show your work.

$4\frac{5}{7}$ _Mixed_ $7 \times 4 = 28$ $28 + 5 = 33$ $\downarrow$ $\left(\frac{33}{7}\right)$	$\frac{21}{5}$ _____	$\frac{34}{5}$ _____
$8\frac{1}{6}$ _____	$6\frac{3}{5}$ _____	$8\frac{1}{2}$ _____
$6\frac{4}{7}$ _____	$\frac{32}{5}$ _____	$\frac{31}{4}$ _____