Math

1s and 2s Tables

Fill in the missing numbers in each table. Read each math phrase out loud as you go. For example: one times zero equals zero times one equals zero. Fill them in one phrase (row) at a time.

1s Table

1	x	0	=	0	x	1	=	0
	x		=		x		=	1
	x		=		x		=	2
	x		=		x		=	3
	x		=		x		=	4
	x		=		x		=	5
	x		=		x		=	6
	x		=		x		=	7
	x		=		x		=	8
	x		=		x		=	9
	x		=		x		=	10
	x		=		x		=	11
	x		=		x		=	12

2s Table

2	x	0	=	0	x	2	=	0
	x		=		x		=	2
	x		=		x		=	4
	x		=		x		=	6
	x		=		x		=	8
	x		=		x		=	10
	x		=		x		=	12
	x		=		x		=	14
	x		=		x		=	16
	x		=		x		=	18
	x		=		x		=	20
	x		=		x		=	22
	x		=		x		=	24

Fun Math Facts!

- ✓ Any number multiplied by one equals itself! This is called the Identity Law!
- ✓ Any number multiplied by an even number, like 2, will result in an answer which is also an even number! (Even numbers end in 0, 2, 4, 6, or 8). Any number which is not even (ends in 1, 3, 5, 7, or 9) is called odd. Look at these numbers. Circle the ones that are even. Underline the odd ones. (Answers in back)

  6 11 23 46 540 972 7234 22445 154869330

Math

3s and 4s Tables

Fill in the missing numbers in each table. Read each math phrase out loud as you go. For example: three times zero equals zero times three equals zero. Fill them in one phrase (row) at a time.

3s Table

3	x	0	=	0	x	3	=	0
	x		=		x		=	3
	x		=		x		=	6
	x		=		x		=	9
	x		=		x		=	12
	x		=		x		=	15
	x		=		x		=	18
	x		=		x		=	21
	x		=		x		=	24
	x		=		x		=	27
	x		=		x		=	30
	x		=		x		=	33
	x		=		x		=	36

4s Table

4	x	0	=	0	x	4	=	0
	x		=		x		=	4
	x		=		x		=	8
	x		=		x		=	12
	x		=		x		=	16
	x		=		x		=	20
	x		=		x		=	24
	x		=		x		=	28
	x		=		x		=	32
	x		=		x		=	36
	x		=		x		=	40
	x		=		x		=	44
	x		=		x		=	48

The Commutative Law for multiplication states a x b = b x a. Choose any of the math facts above and use it to prove (show, demonstrate) this law.

_____

The Identity Law for multiplication states a x 1= 1 x a. Put a star next to the math facts in the above tables which prove this law. (Answers in back)

Math

5s and 6s Tables

Fill in the missing numbers in each table. Read each math phrase out loud as you go. For example: one times five equals zero times five equals zero. Fill them in one phrase (row) at a time.

5s Table

5	x	0	=	0	x	5	=	0
	x		=		x		=	5
	x		=		x		=	10
	x		=		x		=	15
	x		=		x		=	20
	x		=		x		=	25
	x		=		x		=	30
	x		=		x		=	35
	x		=		x		=	40
	x		=		x		=	45
	x		=		x		=	50
	x		=		x		=	55
	x		=		x		=	60

6s Table

6	x	0	=	0	x	6	=	0
	x		=		x		=	6
	x		=		x		=	12
	x		=		x		=	18
	x		=		x		=	24
	x		=		x		=	30
	x		=		x		=	36
	x		=		x		=	42
	x		=		x		=	48
	x		=		x		=	54
	x		=		x		=	60
	x		=		x		=	66
	x		=		x		=	72

Fun Math Fact!

✓ Any number multiplied by 5 will result in an answer which ends in 0 or 5! This means that any number which ends in a 0 or 5 can be divided by 5! Look at these numbers. Circle the ones that can be divided by 5! (Answers in back)

425 78 22 90 63 501 235 34 10 972 45 1

Math

7s and 8s Tables

Fill in the missing numbers in each table. Read each math phrase out loud as you go. For example: seven times zero equals zero times seven equals zero. Fill them in one phrase (row) at a time.

7s Table

7	x	0	=	0	x	7	=	0
	x		=		x		=	7
	x		=		x		=	14
	x		=		x		=	21
	x		=		x		=	28
	x		=		x		=	35
	x		=		x		=	42
	x		=		x		=	49
	x		=		x		=	56
	x		=		x		=	63
	x		=		x		=	70
	x		=		x		=	77
	x		=		x		=	84

8s Table

8	x	0	=	0	x	8	=	0
	x		=		x		=	8
	x		=		x		=	16
	x		=		x		=	24
	x		=		x		=	32
	x		=		x		=	40
	x		=		x		=	48
	x		=		x		=	56
	x		=		x		=	64
	x		=		x		=	72
	x		=		x		=	80
	x		=		x		=	88
	x		=		x		=	96

The Commutative Law for multiplication states a x b = b x a. Choose any of the math facts above and use it to prove (show, demonstrate) this law.

_____

The Identity Law for multiplication states a x 1= 1 x a. Put a star next to the math facts in the above tables which prove this law. (Answers in back)

Math

9s and 10s Tables

Fill in the missing numbers in each table one phrase (row) at a time. Read each math phrase out loud as you go.

9s Table

9	x	0	=	0	x	9	=	0
	x		=		x		=	9
	x		=		x		=	18
	x		=		x		=	27
	x		=		x		=	36
	x		=		x		=	45
	x		=		x		=	54
	x		=		x		=	63
	x		=		x		=	72
	x		=		x		=	81
	x		=		x		=	90
	x		=		x		=	99
	x		=		x		=	108

10s Table

10	x	0	=	0	x	10	=	0
	x		=		x		=	10
	x		=		x		=	20
	x		=		x		=	30
	x		=		x		=	40
	x		=		x		=	50
	x		=		x		=	60
	x		=		x		=	70
	x		=		x		=	80
	x		=		x		=	90
	x		=		x		=	100
	x		=		x		=	110
	x		=		x		=	120

Fun Math Facts!

- ✓ Any number multiplied by 9 will result in an answer in which the digits also add up to 9 or a multiple of 9. Look at the 9s Table above. 18 is a multiple of 9. The digits in 18 are 1 and 8. 1 + 8 = 9! Choose another multiple of 9 from the table. Write it here: ____. Write the digits here: _____. Add them up. What do they equal? _____. Circle the numbers that are multiples of 9:
  72047 1206 333 828 9918 123453
- ✓ When multiplying any number by 10, just add a zero at the end! Practice multiplying these numbers by 10. 22 x 10 = _____ 345 x 10 = _____
  (Answers in back)

Math

11s and 12s Tables

Fill in the missing numbers in each table one phrase (row) at a time. Read each math phrase out loud as you go.

11s Table

11	x	0	=	0	x	11	=	0
	x		=		x		=	11
	x		=		x		=	22
	x		=		x		=	33
	x		=		x		=	44
	x		=		x		=	55
	x		=		x		=	66
	x		=		x		=	77
	x		=		x		=	88
	x		=		x		=	99
	x		=		x		=	110
	x		=		x		=	121
	x		=		x		=	132

12s Table

12	x	0	=	0	x	12	=	0
	x		=		x		=	12
	x		=		x		=	24
	x		=		x		=	36
	x		=		x		=	48
	x		=		x		=	60
	x		=		x		=	72
	x		=		x		=	84
	x		=		x		=	96
	x		=		x		=	108
	x		=		x		=	120
	x		=		x		=	132
	x		=		x		=	144

Fun Math Facts!

✓ 11s are fun! Look at the 11s Table. What do you notice about the products (the answer to a multiplication problem)? Look: 11 x 7 = 77! This works for each one up to 11 x 9 = 99! After that, there is a fun trick! Let's try 11 x 24. Take the multiplier, 24 in this case, and split it. So you have 2 __ 4. Then add them up: 2+4=6. Put that number (the sum) in between! So now you have 264! Now try some of your own! (Answers in back)

71 x 11 = _____ 11 x 33 = _____ 42 x 11 = _____ 11 x 54 = _____

Math

13s Table

Fill in the missing numbers in the table one phrase (row) at a time. Read each math phrase out loud as you go.

Multiplication Facts									Practice your division facts
13	x	0	=	0	x	13	=	0	Rule: You cannot divide by zero (0)
13	x	1	=	1	x	13	=	13	13 ÷ 1 = 13
	x		=		x		=		26 / 2 =
	x		=		x		=		÷ =
	x		=		x		=		/ =
	x		=		x		=		÷ =
	x		=		x		=		/ =
	x		=		x		=		÷ =
	x		=		x		=		/ =
	x		=		x		=		÷ =
	x		=		x		=		/ =
	x		=		x		=		÷ =
	x		=		x		=		/ =
	x		=		x		=		÷ =

Fun Math Facts!

✓ Did you know you can "unmultiply" a number? It's called dividing or division. You write it like this: 6 ÷ 3 = 2 or 6 / 3 = 2 and it is read "six divided by three equals two". Using the 13s multiplication table above, solve the following division equations. (Answers in back)

117 ÷ 13 = _____ 65/5 = _____ 169 ÷ 13 = _____ 91/13 = _____

Write your own from previous math facts tables!

_____ ÷ _____ = _____ _____ / _____ = _____

Math

14s Table

Fill in the missing numbers in the table one phrase (row) at a time. Read each math phrase out loud as you go.

Multiplication Facts									Practice your division facts
14	x	0	=	0	x	14	=	0	Rule: You cannot divide by zero (0)
14	x	1	=	1	x	14	=	14	14 / 1 = 14
	x		=		x		=		28 ÷ 2 =
	x		=		x		=		/ =
	x		=		x		=		÷ =
	x		=		x		=		/ =
	x		=		x		=		÷ =
	x		=		x		=		/ =
	x		=		x		=		÷ =
	x		=		x		=		/ =
	x		=		x		=		÷ =
	x		=		x		=		/ =
	x		=		x		=		÷ =
	x		=		x		=		/ =

Fun Math Facts!

✓ Do you remember how to "unmultiply" a number, or divide? Using the 14s table above, solve the following division equations. (Answers in back)

112 ÷ 14 = _____ 70/5 = _____ 168 ÷ 14 = _____ 182/13 = _____

Write your own from previous math facts tables!

_____ ÷ _____ = _____ _____ / _____ = _____

Math

15s Table

Fill in the missing numbers in the table one phrase (row) at a time. Read each math phrase out loud as you go.

Multiplication Facts									Practice your division facts
15	x	0	=	0	x	15	=	0	Rule: You cannot divide by zero (0)
15	x	1	=	1	x	15	=	15	15 ÷ 1 = 15
	x		=		x		=		30 ÷ 2 =
	x		=		x		=		/ =
	x		=		x		=		/ =
	x		=		x		=		÷ =
	x		=		x		=		÷ =
	x		=		x		=		/ =
	x		=		x		=		/ =
	x		=		x		=		÷ =
	x		=		x		=		÷ =
	x		=		x		=		/ =
	x		=		x		=		/ =
	x		=		x		=		÷ =
	x		=		x		=		÷ =

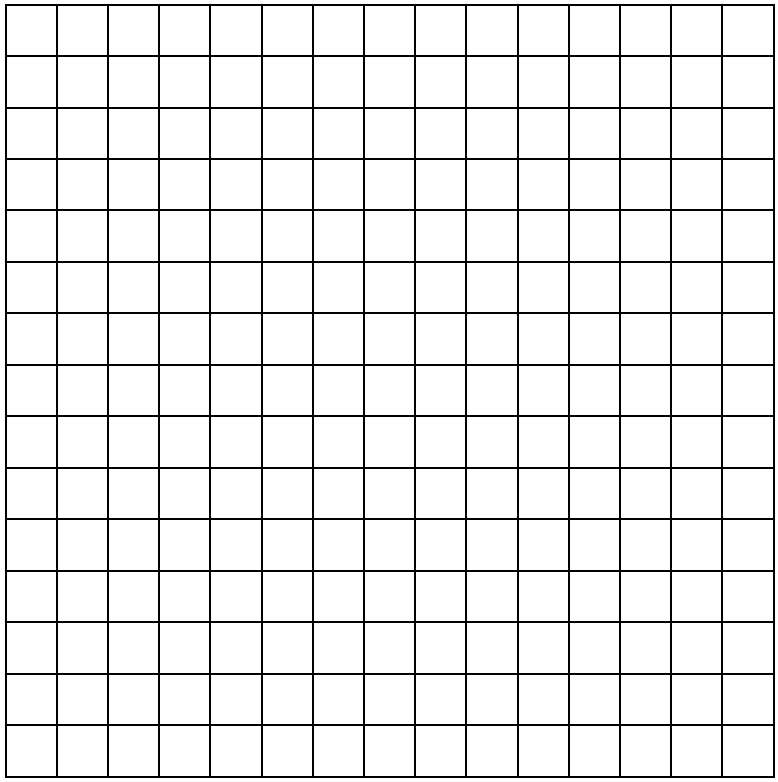
The Commutative Law for multiplication states a x b = b x a. Choose any of the math facts above and use it to prove (show, demonstrate) this law.

_____

The Identity Law for multiplication states a x 1= 1 x a. Put a star next to the math fact in the above table which proves this law.

Math

Squares (up to 15x15)



Complete the squares. Read each aloud as you go.

1^2 or 1 x 1 = 1

2^2 or 2 x 2 = 4

3^2 or _____ x _____ = _____.

4^2 or _____ x _____ = _____.

5^2 or _____ x _____ = _____.

6^2 or _____ x _____ = _____.

7^2 or _____ x _____ = _____.

8^2 or _____ x _____ = _____.

9^2 or _____ x _____ = _____.

10^2 or _____ x _____ = _____.

11^2 or _____ x _____ = _____.

12^2 or _____ x _____ = _____.

13^2 or _____ x _____ = _____.

14^2 or _____ x _____ = _____.

15^2 or _____ x _____ = _____.

Fun Math Fact!

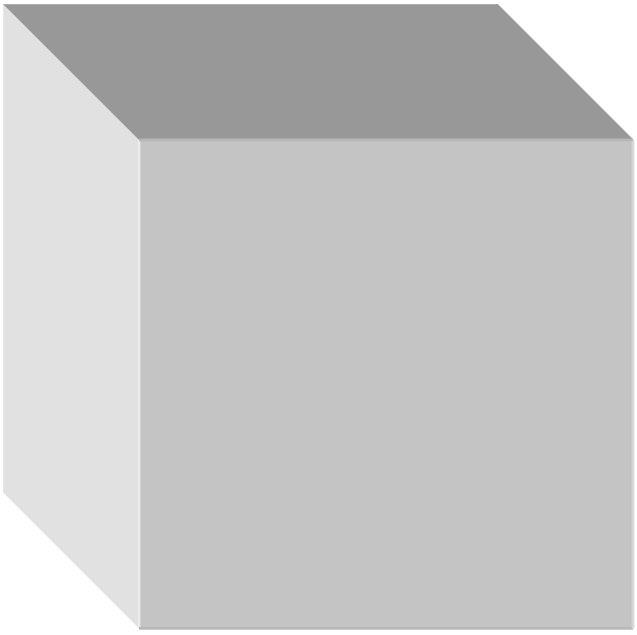
Any number, we'll call it "a", squared (a^2), is the same as writing *a times a* (a x a).

So $a^2 = a \times a$.

1. Using this grid, draw a square of any size you like. How long is each side? ____
2. Count how many grid squares are inside the square you drew. _____
3. Using the grid, draw squares to prove (demonstrate, show) that at least 5 of your answers in the above math phrases are correct.

Math

Cubes (up to 10x10x10)



The Volume (V) of a Cube equals the length of its side (s) cubed (^{3}) ($V = s^3$), or the length (l) times its width (w) times its height (h) ($V = l \times w \times h$). So a cube 3 units long has an area of 27 ($3^3 = 27$ or 3x3x3=27).

Complete the cubes. Read each aloud as you go.

1^3 or 1 x 1 x 1 = 1

2^3 or 2 x 2 x 2 = 8

3^3 or _____ x _____ x _____ = _____.

4^3 or _____ x _____ x _____ = _____.

5^3 or _____ x _____ x _____ = _____.

6^3 or _____ x _____ x _____ = _____.

7^3 or _____ x _____ x _____ = _____.

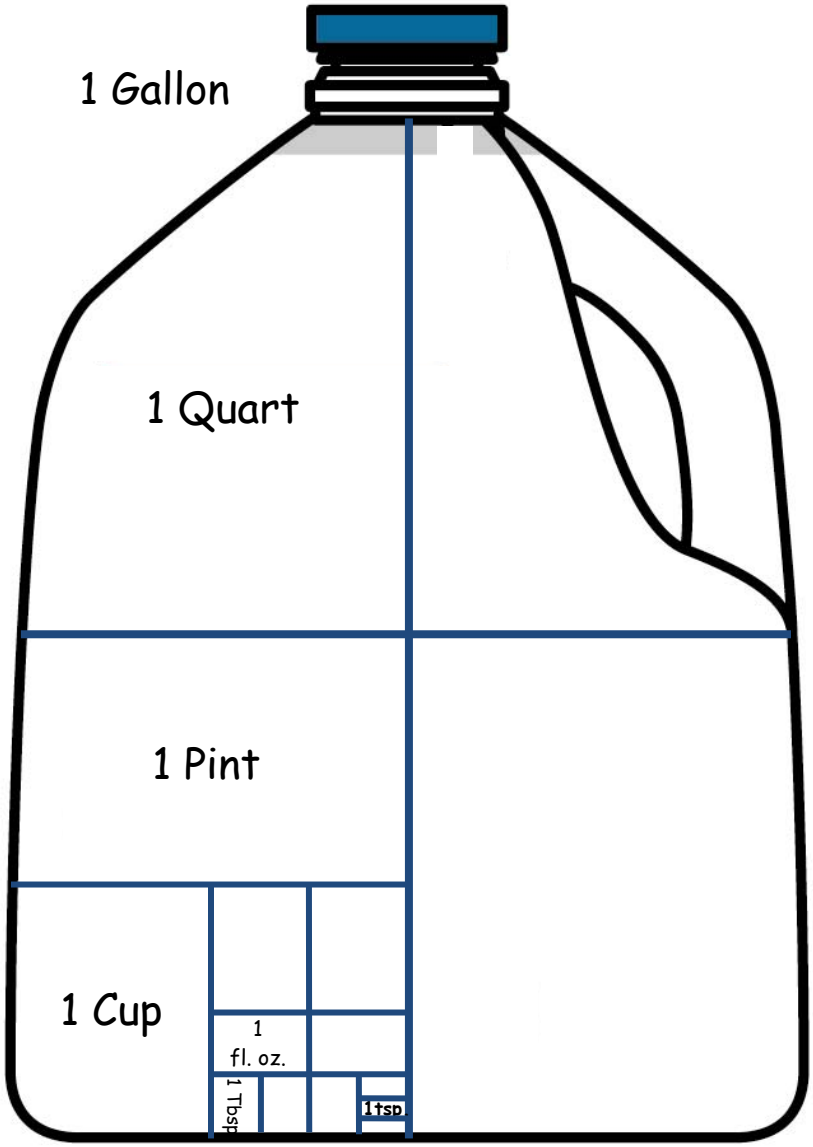
8^3 or _____ x _____ x _____ = _____.

9^3 or _____ x _____ x _____ = _____.

10^3 or _____ x _____ x _____ = _____.

Math

Liquid Equivalents



Abbreviations

g = gallon

qt = quart

pt = pint

c = cup

fl. oz. = fluid ounce

Tbsp (or Tb or T) = tablespoon

tsp (or t) = teaspoon

Using the picture above, fill in the correct liquid equivalents (conversions).

_____ teaspoon(s) = 1 tablespoon

_____ tablespoon(s) = 1 fluid ounce

_____ cup(s) = 1 pint

_____ pint(s) = 1 quart

_____ quart(s) = 1 gallon

_____ fluid ounce(s) = 1 cup

_____ tablespoon(s) = 1/4 cup

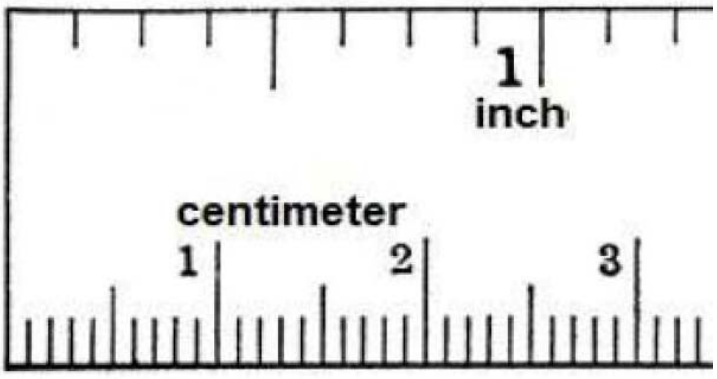
_____ fluid ounce(s) = 1 cup

_____ fluid ounce (s) = 1 gallon

_____ cup(s) = 1 gallon

Math

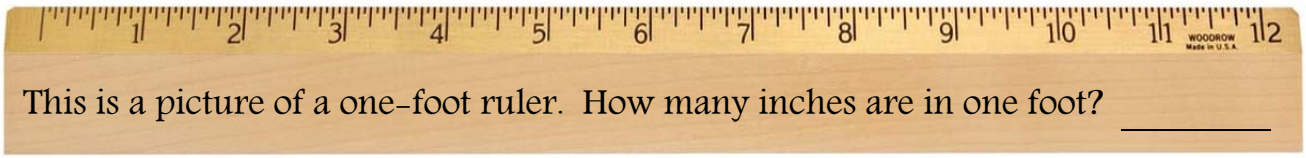
Linear Equivalents



Draw a line down from the 1" mark to the centimeters below.

How many centimeters (cm) is one inch (1in. or 1")?

_____ cm = _____ in.



This is a picture of a one-foot ruler. How many inches are in one foot? _____

3 feet (3 ft. or 3') = 1 yard (1 yd.)

5,280 feet (5,280 ft. or 5,280') = 1 mile (1 mi.)

Activity!

Ask your parents to help you plot a 1-mile route in your neighborhood and go for a walk, bike-ride, or run!

How many feet are in a yard?

Depends on how many people are in it!

Math

Metric Measurements

The metric system is based on 10. The names for metric measurements use Greek and Latin roots and prefixes. The root word tells you what is being measured. The prefix tells you how many. Read this information before continuing.

The Metric System

1,000,000,000,000.	tera (T)	trillion
1,000,000,000.	giga (G)	billion
1,000,000.	mega (M)	million
1,000.	kilo (k)	thousand
100.	hecto (h)	hundred
10.	deca (da)	ten
1.	(only root)	
	deci (d)	.1 (tenths)
	centi (c)	.01 (hundredths)
	milli (m)	.001 (thousandths)
	micro (μ)	.0001 (millionths)
	nano (n)	.0000001 (billionths)
	pico (p)	.0000000001 (trillionths)

The letter in the (parenthesis) is the abbreviation for that word.

The underlined part tells you how many of that measure are in one unit of that measure. So there are 10 decimeters in one meter and 1,000 milliliters in one liter.

Metric Roots

Measure	Root Word
distance	meter (m)
volume	liter (l)
weight	gram (g)

_____millimeters (mm) = 1 centimeter (cm)

_____centimeters (cm) = 1 meter (m) _____meters (m) = 1 kilometer (km)

You can know exactly how many or much of what by knowing the prefixes and suffixes.

Examples: a **megagram** is 1,000,000 units of weight and a **picometer** is one trillionth (.0000000001) of a unit of distance. Solve these.

A nanoliter is _____ units of: distance volume weight

A _____ is one millionth (.0001) of a unit of weight.

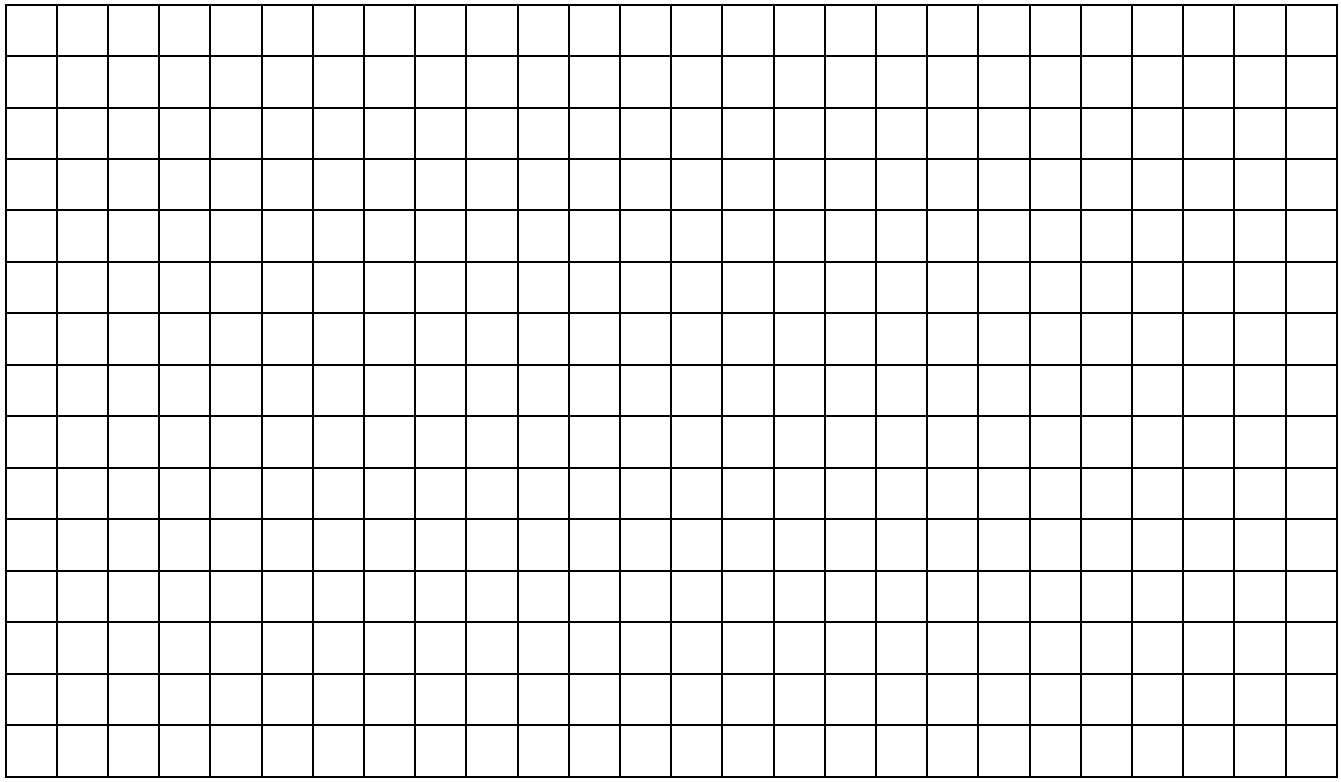
Metric abbreviations: the first letter is for the prefix, the second letter (or if there's only one letter) is for the measure. So 1 **cm** is one **c**enti**m**eter. Use the information above to solve these:

nl _____ Gg _____

How would you abbreviate these: decameter _____ microliter _____

Math

Area of a Rectangle



Fun Math Fact!

The area of a rectangle equals its length times its width.

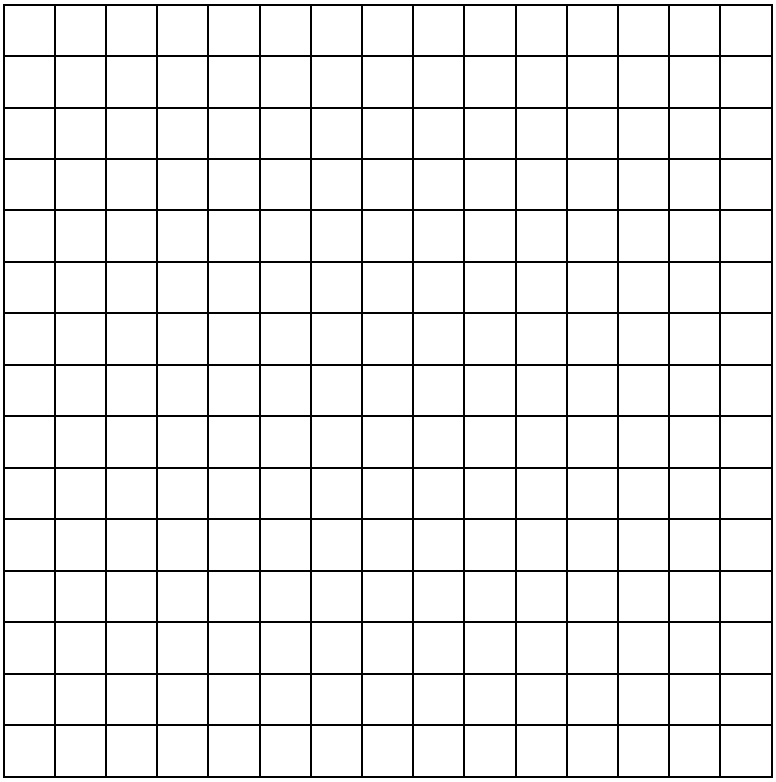
Area (A) = length (l) x width (w)

A = l x w or l x w = A

1. Using this grid, draw a rectangle any size you like.
   How long is its length? _____ width? _____
2. Using the formula for the area of a rectangle, what is the area of your rectangle? _____ x _____ = _____ units squared (we say this because each unit is a square!)
3. Count how many grid squares are inside the square you drew. _____ Does the number match the answer to your equation in #2? yes no
4. Repeat this process with several different size and shape rectangles.

Math

Area of a Square



Complete the squares. Read each aloud as you go.

1^2 or 1 x 1 = 1

2^2 or 2 x 2 = 4

3^2 or _____ x _____ = _____.

4^2 or _____ x _____ = _____.

5^2 or _____ x _____ = _____.

6^2 or _____ x _____ = _____.

7^2 or _____ x _____ = _____.

8^2 or _____ x _____ = _____.

9^2 or _____ x _____ = _____.

10^2 or _____ x _____ = _____.

11^2 or _____ x _____ = _____.

12^2 or _____ x _____ = _____.

13^2 or _____ x _____ = _____.

14^2 or _____ x _____ = _____.

15^2 or _____ x _____ = _____.

Fun Math Fact!

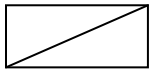
The area of a square equals length of its side squared. Any number, we'll call it "a", squared (a^2), is the same as writing *a times a* (a x a). So $a^2 = a \times a$. Do you remember the area of a rectangle? A = l x w. A square is simply a rectangle with equal sides, so the formula for the area for a rectangle works for a square, too! However, since a square has equal sides, we can just "square" any side, or use a^2.

Fill in the equations to the right of the grid. As you do so, draw squares in the grid of the same size as your problem. Does the answer on the right match the number of grid squares inside your square?

Math

Area of a Triangle

Fun Math Fact!

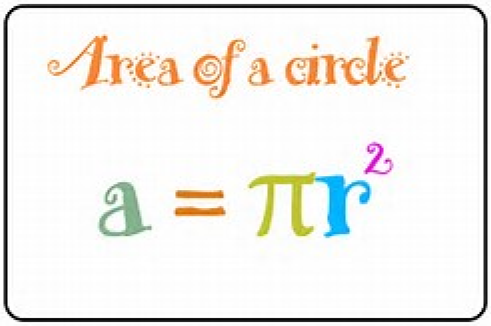
The area of a triangle equals one-half base (b) times height (h). Rectangles can be divided diagonally to create two triangles.  The base of a triangle is the "length" of its rectangle, and its height is its rectangle's "width", so (l x w) = (b x h). If the area of a triangle is always half of its rectangle, then the area of a triangle is ½ (l x w). We're working with triangles so we write it ½ (b x h), or (b x h) ÷ 2.

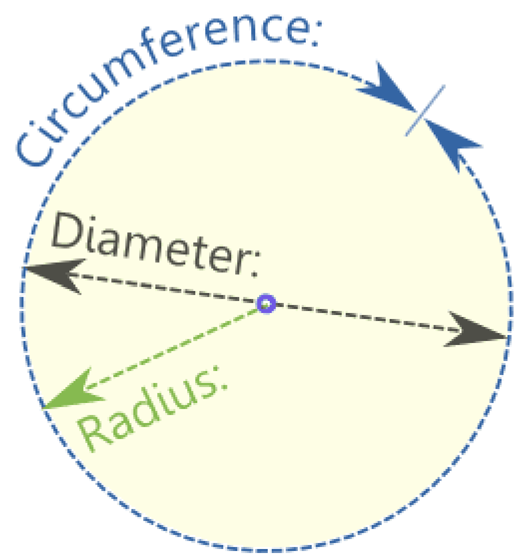
Draw these triangles in the grid. Find their areas.

b	h	area = b x h ÷ 2
2	4	(x) = ___ ÷ 2 = _____
1	6	(x) = ___ ÷ 2 = _____
7	10	(x) = ___ ÷ 2 = _____
14	6	(x) = ___ ÷ 2 = _____
6	7	(x) = ___ ÷ 2 = _____
5	5	(x) = ___ ÷ 2 = _____
9	11	(x) = ___ ÷ 2 = _____
13	12	(x) = ___ ÷ 2 = _____
11	1	(x) = ___ ÷ 2 = _____
2	15	(x) = ___ ÷ 2 = _____

Math

Area of a Circle



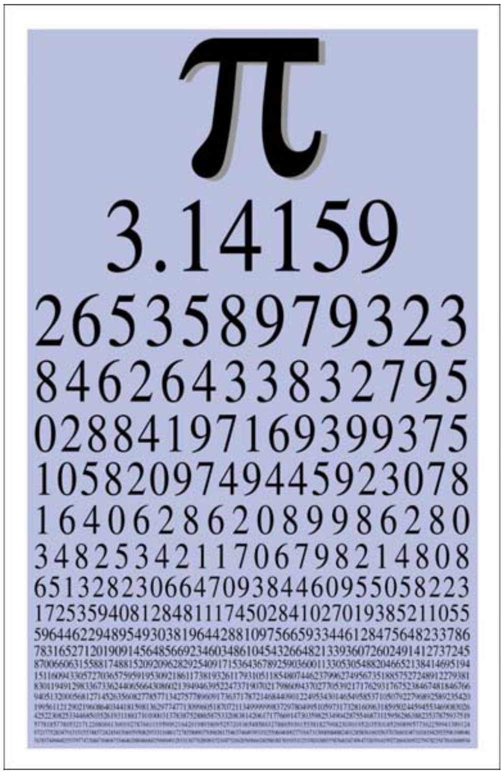


Say "The area of a circle equals pi (3.14) times the radius squared."

a = area… how much space a shape takes up

π = pi… a never-ending number used to compare a circle's diameter and circumference. You can use 3.14.

r = radius… the distance from the center of the circle to the edge



Using a calculator, compute the area of some circles. Remember, a = 3.14 x r^2 and r^2 = r x r.

If r = 1, then a = ____________________ (3.14 x 1^2)

If r = 2, then a = ____________________

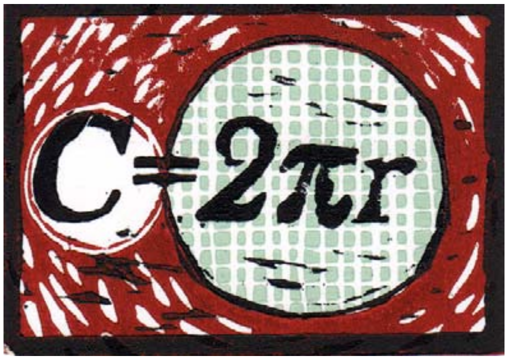
If r = 3, then a = ____________________

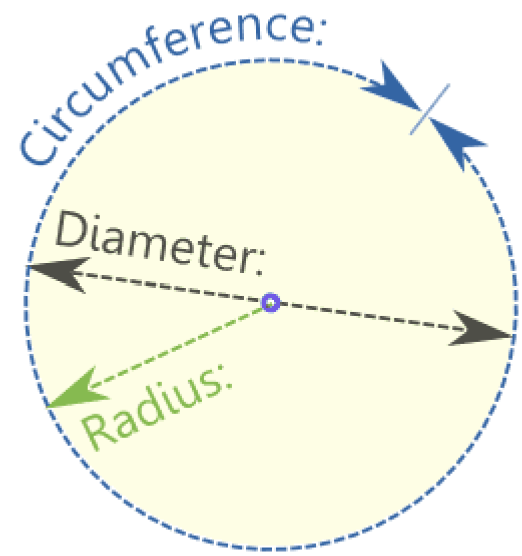
If r = 4, then a = ____________________

Make your own! If r = ________, then a = ____________________

Math

Circumference of a Circle



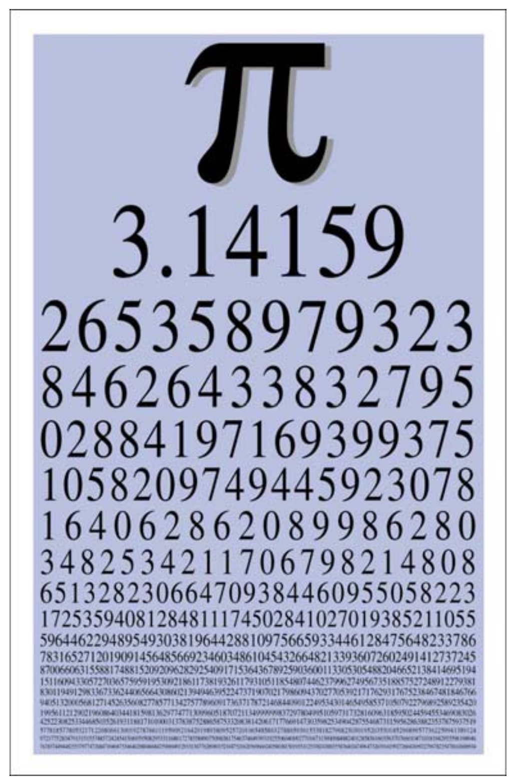


Say, "The circumference of a circle equals two times pi (3.14) times the radius."

C = circumference… the distance around a circle

π = pi… a never-ending number used to compare a circle's diameter and circumference. You can use 3.14.

r = radius… the distance from the center of the circle to the edge



Using a calculator, compute the area of some circles. Remember, C = 2 x 3.14 x r.

If r = 1 then C = ____________ (2 x 3.14 x 1)

If r = 2 then C = ____________

If r = 3 then C = ____________

If r = 4 then C = ____________

Make your own! If r = ______ then C = ____________

Math

The Associative Law

For Addition

(a + b) + c = a + (b + c)

These letters symbolize numbers. They are called "unknowns". This formula, or equation, works for any numbers.

Here's an example:

If a = 2, b = 3, and c = 4, then

(a + b) + c = a + (b + c)

becomes

(2 + 3) + 4 = 2 + (3 + 4), then

(5) + 4 = 2 + (7), then

9 = 9

Prove the associative law for addition.

Write the associative law here:

_____

Choose a number for each unknown.

a = _____ b = _____ c = _____

Now replace the unknowns in the equation with the numbers you chose and solve.

(____ + ____) + ____ = ____ + (____ + ____)

(____) + ____ = ____ + (____)

_____ = _____

For Multiplication

(a x b) x c = a x (b x c)

As with the associative law for addition, this equation uses unknowns and works for any numbers.

Here's an example:

If a = 2, b = 3, and c = 4, then

(a x b) x c = a x (b x c)

becomes

(2 x 3) x 4 = 2 x (3 x 4), then

(6) x 4 = 2 x (12), then

24 = 24

Prove the associative law for multiplication.

Write the associative law here:

_____

Choose a number for each unknown.

a = _____ b = _____ c = _____

Now replace the unknowns in the equation with the numbers you chose and solve.

(____ x ____) x ____ = ____ x (____ x ____)

(____) x ____ = ____ x (____)

_____ = _____

Math

The Commutative Law

For Addition

a + b = b + a

These letters symbolize numbers. They are called "unknowns". This formula, or equation, works for any numbers.

Here's an example:

If a = 2 and b = 3, then

a + b = b + a

becomes

2 + 3 = 3 + 2, then

5 = 5

Prove the commutative law for addition.

Write the commutative law here:

_____

Choose a number for each unknown.

a = _____ b = _____

Now replace the unknowns in the equation with the numbers you chose and solve.

_____ + _____ = _____ + _____

_____ = _____

For Multiplication

a x b = b x a

As with the associative law for addition, this equation uses unknowns and works for any numbers.

Here's an example:

If a = 2 and b = 3, then

a x b = b x a

becomes

2 x 3 = 3 x 2, then

6 = 6

Prove the commutative law for multiplication.

Write the commutative law here:

_____

Choose a number for each unknown.

a = _____ b = _____

Now replace the unknowns in the equation with the numbers you chose and solve.

_____ x _____ = _____ x _____

_____ = _____

Math

The Distributive Law

a x (b + c) = (a x b) + (a x c)

These letters symbolize numbers. They are called "unknowns".
This formula, or equation, works for any numbers.

Here's an example:

If a = 2, b = 3, and c = 4 then
a x (b + c) = (a x b) + (a x c)
becomes
2 x (3 + 4) = (2 x 3) + (2 x 4), then
2 x (7) = (6) + (8), then
14 = 14

Prove the distributive law.

Write the distributive law here:

_____

Choose a number for each unknown.

a = _____ b = _____ c = _____

Now replace the unknowns in the equation with the numbers you chose and solve.

_____ x (_____ + _____) = (_____ x _____) + (_____ x _____)

_____ x (_____) = (_____) + (_____)

_____ = _____

Math

The Identity Law

For Addition

a + 0 = a

The letter "a" symbolizes an unknown number. This formula, or equation, works for any number.

Here's an example:

If a = 2, then

a + 0 = a becomes 2 + 0 = 2

Prove the identity law for addition.

Write the identify law here:

_____

Choose a number for the unknown.

a = _____

Now replace the unknown in the equation with the number you chose and solve.

_____ + 0 = _____.

_____ = _____

For Multiplication

a x 1 = a

The letter "a" symbolizes an unknown number. This formula, or equation, works for any number.

Here's an example:

If a = 2, then

a x 1 = a becomes 2 x 1 = 2

Prove the identity law for multiplication.

Write the identify law here:

_____

Choose a number for the unknown.

a = _____

Now replace the unknown in the equation with the number you chose and solve.

_____ x 1 = _____.

_____ = _____