Name _____ Date _____

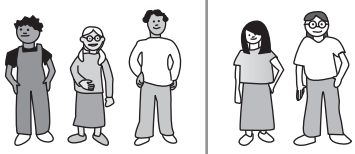
PRIME OR COMPOSITE

3 children
There is only 1 group.
3 is a **prime number**.

4 children
There are 2 equal groups.
4 is a **composite number**.

7 children
There are 2 unequal groups.
7 is a **prime number**.

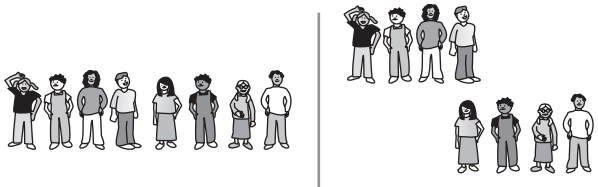
Circle prime number or composite number.



1. prime number composite number

2. prime number composite number

3. prime number composite number

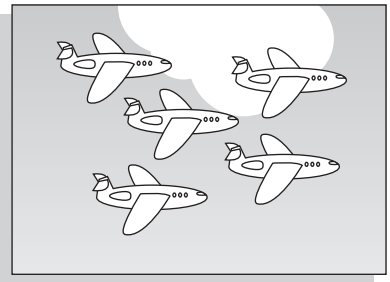


4. prime number composite number

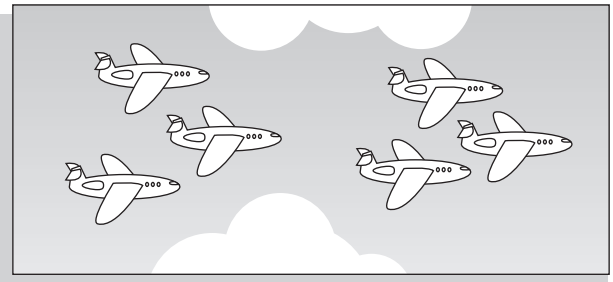
Name _____ Date _____

PRIME OR COMPOSITE

Look at these numbers of planes in groups.



5 planes.
You can only make one same-sized group.
5 is a **prime number**.



6 planes.
You can make more than one same-sized group.
6 is a **composite number**.

Draw as many same-sized groups of planes as you can for each number. Write prime number or composite number.

1. 4

_____

2. 7

_____

3. 8

_____

4. 9

_____

5. 10

_____

Name _____ Date _____

PRIME OR COMPOSITE

A prime number has exactly two different factors, itself and 1.

Example: 7
Factors: 1 and 7

A composite number has more than two different factors.

Example: 12
Factors: 1, 2, 3, 4, 6, and 12

Color the prime numbers in the table red.
Remember 1 is not a prime number.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

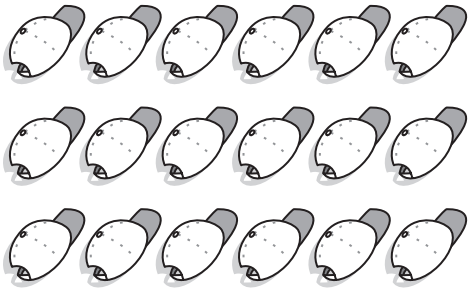
CHALLENGE

What is the first prime number after 100? _____

What is the first composite number after 100? _____

Name _____ Date _____

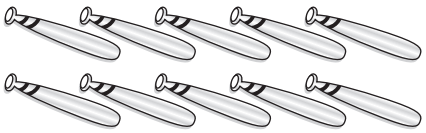
FACTORS AND MULTIPLES



The array shows that 3 x 6 = 18.
The numbers that are multiplied, 3 and 6, are called the **factors**.
The product, 18, is a **multiple** of 3 and a **multiple** of 6.

Even numbers end in 0, 2, 4, 6, or 8. So, 6 and 18 are even numbers.
Odd numbers end in 1, 3, 5, 7, or 9. So, 3 is an odd number.

Use each array to complete the sentences.

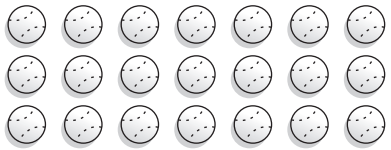


2 x 5 = 10

The factors are _____ and _____.

A multiple of _____ and _____ is _____.

Even numbers: _____ Odd numbers: _____



3 x 7 = 21

The factors are _____ and _____.

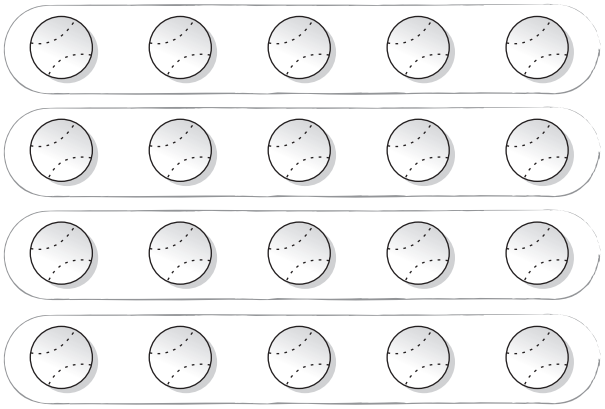
A multiple of _____ and _____ is _____.

Even numbers: _____ Odd numbers: _____

Name _____ Date _____

FACTORS AND MULTIPLES

Look at these groups of baseballs.



You can multiply to find how many baseballs there are in all.

$$4 \times 5 = 20$$

factor factor product

The product of a whole number and any other whole number is a **multiple** of the whole numbers. So, 20 is a multiple of 4 and a multiple of 5.

Even numbers end in 0, 2, 4, 6, or 8. So, 4 and 20 are even numbers.
Odd numbers end in 1, 3, 5, 7, or 9. So, 5 is an odd number.

Complete each number sentence.
Tell if the missing number is odd or even.
Then complete the sentences. Write *factor* or *multiple*.

1. 3 x 5 = _____ _____ A _____ of 3 and 5 is _____.

2. 6 x _____ = 24 _____ A _____ of 24 is _____.

3. _____ x 4 = 12 _____ A _____ of 12 is _____.

4. 9 x 2 = _____ _____ A _____ of 9 and 2 is _____.

5. _____ x 3 = 21 _____ A _____ of 21 is _____.

6. 5 x _____ = 30 _____ A _____ of 30 is _____.

Name _____ Date _____

FACTORS AND MULTIPLES

The numbers that are multiplied to give the product of a number are called **factors**.

The factors of a number also evenly divide the number.

A number with more than two factors is a **composite** number.

The product of a whole number and any other whole number is a **multiple** of the whole numbers.

Example: 1 x 18 = 18, 2 x 9 = 18, 3 x 6 = 18
The factors of 18 are 1, 2, 3, 6, 9, and 18.
18 is a composite number since
it has more than two factors.
18 is a multiple of 2 and 9. It is also a multiple of 3 and 6.

If you can divide a number evenly by 2, the number is **even**.
If the remainder is 1 when you divide by 2,
the number is **odd**.

Examples: 18 ÷ 2 = 9, so 18 is even.
19 ÷ 2 = 9 R1, so 19 is odd.

List all the factors of each number.
Is the number odd or even?

1. 16 _____
Odd or Even? _____

2. 15 _____
Odd or Even? _____

3. 12 _____
Odd or Even? _____

4. 30 _____
Odd or Even? _____

5. 35 _____
Odd or Even? _____

6. 45 _____
Odd or Even? _____

Write a multiple of each pair of numbers.

7. 3 and 5 _____

8. 4 and 6 _____

9. 3 and 10 _____

10. 5 and 9 _____

CHALLENGE

What factors do 18 and 42 have in common? _____

What is the least common multiple of 6 and 8
(the least number that is a multiple of both numbers)? _____

Name _____ Date _____

EQUIVALENT FRACTIONS AND DECIMALS

You can use a fraction or a decimal to name the part of a hundred.

Fraction

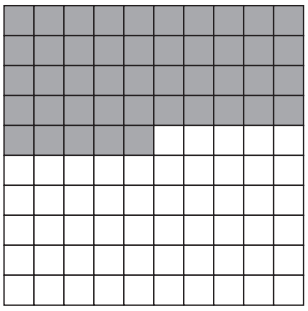
$\frac{45}{100}$

The numerator tells the number of parts that are shaded.

The denominator tells the total number of parts: 100.

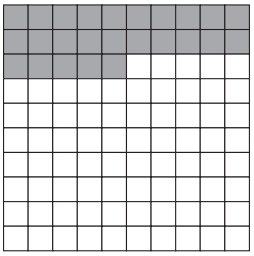
Decimal

0.45 decimal point



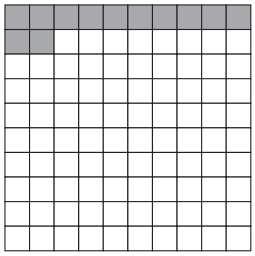
Write the fraction and decimal for each model.

1.



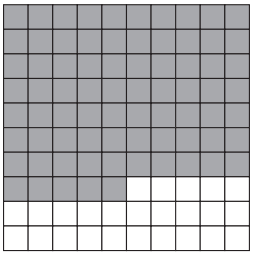
_____ _____

2.



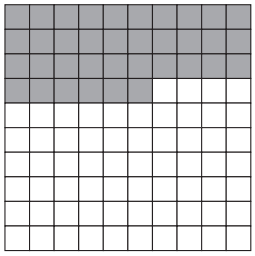
_____ _____

3.



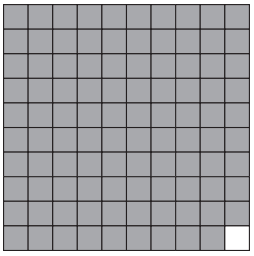
_____ _____

4.



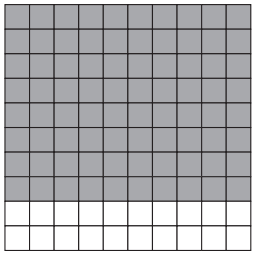
_____ _____

5.



_____ _____

6.

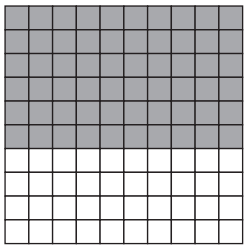


_____ _____

Name _____ Date _____

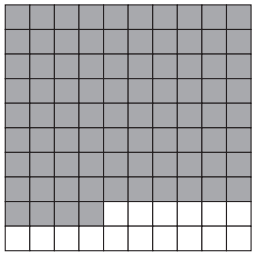
EQUIVALENT FRACTIONS AND DECIMALS

Equivalent fractions and decimals name the same amount.

Fraction $\frac{6}{10}$ **Decimal** 0.6		**Fraction** $\frac{60}{100}$ **Decimal** 0.60	

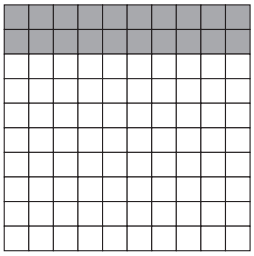
Write a fraction and decimal for each model.

1.



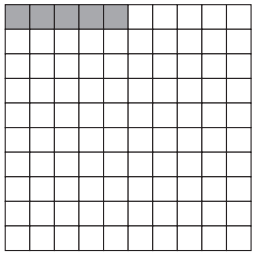
_____ _____

2.



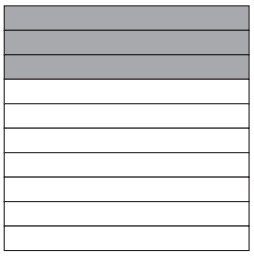
_____ _____

3.



_____ _____

4.



_____ _____

5.

_____ _____

6.

_____ _____

Name _____ Date _____

EQUIVALENT FRACTIONS AND DECIMALS

You can use money to relate equivalent fractions, decimals, and percents.

A quarter of a dollar is \$0.25 or 25 cents out of 100 cents.

Decimal: 0.25 **Fraction:** $\frac{25}{100}$ **Percent:** 25%

To write an equivalent percent,
write the part of a hundred with the percent symbol: %.

Notice that 25% is the same part of a dollar as 25 cents.

Complete the table. Write a decimal, a fraction, and a percent of a dollar for each amount.

COINS	DECIMAL	FRACTION	PERCENT
1. 1 dime			
2. 1 nickel			
3. 1 penny			
4. 3 dimes			
5. 3 nickels			
6. 3 pennies			
7. 2 quarters			
8. 3 quarters			
9. 8 dimes			
10. 4 quarters			

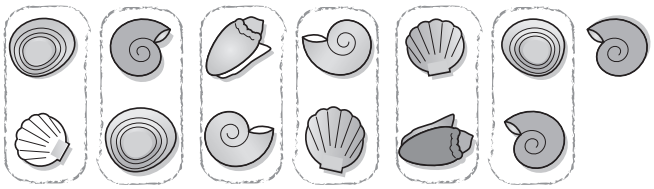
Name _____ Date _____

ODD AND EVEN NUMBERS

Even numbers can be divided equally into pairs.

The number 12 is even.

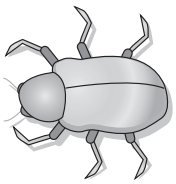
Odd numbers cannot be divided equally into pairs. There is always a remainder.



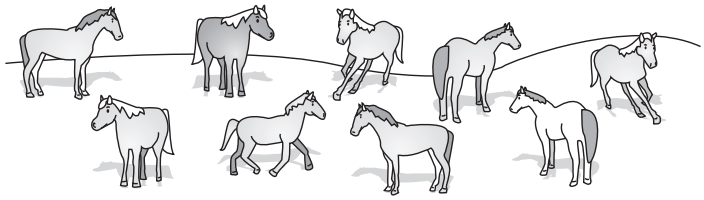
The number 13 is odd.

Tell whether the number is odd or even. Make pairs to show why.

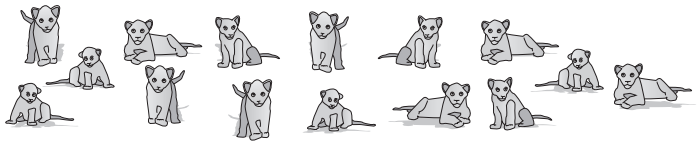
1. A beetle has 6 legs.
Is the number 6 odd or even? _____



2. There are 9 horses in the pasture.
Is the number 9 odd or even? _____



3. There are 15 lion cubs in the pride.
Is the number 15 odd or even? _____



CHALLENGE

Complete each sentence.
Choose from the numbers 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9.
You may draw pictures to help you decide.

Even numbers end in _____.

Odd numbers end in _____.

Is the number 85 odd or even? _____

Is the number 90 odd or even? _____

Name _____ Date _____

Discovery EDUCATION

ODD AND EVEN NUMBERS

Even numbers *end* in 0, 2, 4, 6, or 8. 76 and 390 are even numbers.	**Odd** numbers *end* in 1, 3, 5, 7, or 9. 41 and 867 are odd numbers.

Write if the number is odd or even.

1. 35 _____

2. 629 _____

3. 754 _____

4. 2,081 _____

5. 7,496 _____

6. 11,950 _____

Add or subtract.
Tell if the numbers in each exercise are odd or even.
Is the sum or difference odd or even?

7. 35 + 11 = _____	odd + odd = _____
8. 24 + 30 = _____	_____
9. 41 + 8 = _____	_____
10. 24 + 37 = _____	_____
11. 45 − 3 = _____	_____
12. 58 − 52 = _____	_____
13. 29 − 16 = _____	_____
14. 76 − 51 = _____	_____

CHALLENGE

Predict when the sum will be odd and when the sum will be even when you add odd or even numbers. _____

_____

Predict when the difference will be odd and when the difference will be even when you subtract using odd or even numbers. _____

_____

DISCOVERING MATH LEVEL 2

Name _____ Date _____

Discovery EDUCATION

ODD AND EVEN NUMBERS

If you can divide a number evenly by 2, the number is **even**.
Even numbers end in 0, 2, 4, 6, or 8.

If the remainder is 1 when you divide by 2, the number is **odd**.
Odd numbers end in 1, 3, 5, 7, or 9.

Answer each question. Use examples to illustrate each answer.

1. Is the sum of two even numbers odd or even? _____
Is the difference between two even numbers odd or even? _____
Examples: _____

2. Is the sum of two odd numbers odd or even? _____
Is the difference between two odd numbers odd or even? _____
Examples: _____

3. Is the sum of an even number and an odd number odd or even? _____
Is the difference between an even number and an odd number odd or even? _____
Examples: _____

4. Is the sum of an odd number and an even number odd or even? _____
Is the difference between an odd number and an even number odd or even? _____
Examples: _____

5. Is the product of two even numbers odd or even? _____
Examples: _____

6. Is the product of two odd numbers odd or even? _____
Examples: _____

7. Is the product of an odd number and an even number odd or even? _____
Examples: _____

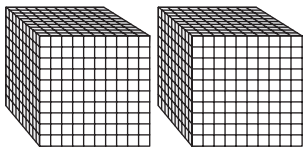
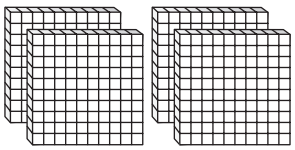
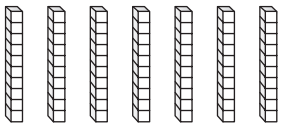
DISCOVERING MATH
LEVEL 3

Name _____ Date _____

Discovery EDUCATION

PLACE VALUE

You can use models to show numbers.

MODELS			
			
2 Thousands	4 Hundreds	7 Tens	5 Ones

Number: 2,475 A comma separates the thousands and the hundreds.

You can also use a place-value chart to show numbers.
A place-value chart can help you understand the value of each digit in a number.

PLACE-VALUE CHART			
Thousands	**Hundreds**	**Tens**	**Ones**
2	4	7	5
The 2 is in the thousands place. The value of the 2 is 2,000.	The 4 is in the hundreds place. The value of the 4 is 400.	The 7 is in the tens place. The value of the 7 is 70.	The 5 is in the ones place. The value of the 5 is 5.

Write the value of each underlined digit.

1. 4̲6 _____

2. 5,3̲27 _____

3. 15̲6 _____

4. 1̲,763 _____

5. 7̲39 _____

6. 9̲1 _____

7. 4,5̲20 _____

8. 3̲,124 _____

Solve.

9. What number has 6 thousands, 3 hundreds, 1 ten, and 4 ones? _____

CHALLENGE

What number has 3 thousands, 2 more hundreds than thousands, and no tens or ones? _____

What number has 4 tens, 6 thousands, 3 ones, and 7 hundreds? _____

DISCOVERING MATH LEVEL 1

Name _____ Date _____

Discovery EDUCATION

PLACE VALUE

A place-value chart shows the value of each digit in a number.

THOUSANDS			ONES		
Hundreds	Tens	Ones	Hundreds	Tens	Ones
2	5	4	1	3	8

The place-value chart shows two periods.
Commas are used to separate numbers into periods.
Each period is divided into hundreds, tens, and ones.

Standard form: 254,138
Expanded form: 200,000 + 50,000 + 4,000 + 100 + 30 + 8

Write each number in expanded form.

1. 8,240 _____

2. 36,019 _____

3. 700,546 _____

4. 941,203 _____

Write each number in standard form.

5. 20,000 + 7,000 + 80 _____

6. 500,000 + 3,000 + 200 _____

7. 400,000 + 10,000 + 5,000 + 6 _____

8. 30,000 + 90 + 4 _____

CHALLENGE

What number is 1,000 less than 6,312? _____

What number is 10,000 more than 376,204? _____

Name _____ Date _____

Discovery EDUCATION

PLACE VALUE

A place-value chart can help you read and write numbers in the millions.

MILLIONS			THOUSANDS			ONES		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones
4	0	2	0	6	3	9	0	0

Standard form: 402,063,900
Word form: four hundred two million, sixty-three thousand, nine hundred
Short word form: 402 million, 63 thousand, 900

Write the standard form for each number.

1. seven million, three hundred four thousand, ten _____

2. twelve million, nine thousand, sixty-two _____

3. six hundred four thousand, four hundred eight _____

4. one hundred fifty-nine million, three hundred _____

5. one million, ninety-two thousand, eight hundred one _____

Write each number in word form.

6. 8,210,050 _____

7. 30,007,200 _____

8. 14,806,000 _____

9. 702,050,000 _____

10. 652,001,000 _____

CHALLENGE

What number is 1,000,000 more than 11 million, 1 thousand, ten?

_____

What number is 10,000 less than 1 million, 235 thousand?

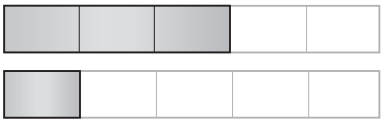
_____

Name _____ Date _____

RELATIONSHIPS AMONG NUMBERS

You can use models to compare fractions and mixed numbers.

Which is greater: $\frac{3}{5}$ or $\frac{1}{5}$?



$\frac{3}{5}$ is greater than $\frac{1}{5}$.

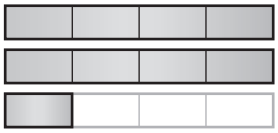
Which is greater: $\frac{2}{5}$ or $\frac{5}{8}$?

$\frac{5}{8}$ is greater than $\frac{2}{5}$.

Which is greater: $2\frac{1}{4}$ or $1\frac{3}{4}$?

Method 1:

From the models, $2\frac{1}{4}$ is greater than $1\frac{3}{4}$.

$2\frac{1}{4}$ 

$1\frac{3}{4}$ 

Method 2: The whole numbers are different.

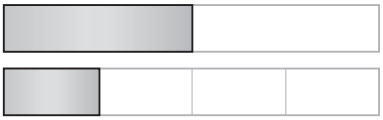
Compare the mixed numbers by comparing the whole numbers first.

2 is greater than 1, so $2\frac{1}{4}$ is greater than $1\frac{3}{4}$.

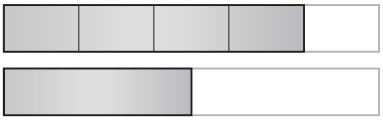
Write the greater number.

1. Which is greater: $\frac{1}{3}$ or $\frac{2}{3}$? _____

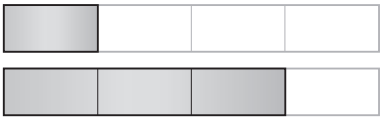
2. Which is greater: $\frac{1}{2}$ or $\frac{1}{4}$? _____



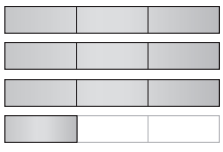
3. Which is greater: $\frac{4}{5}$ or $\frac{1}{2}$? _____

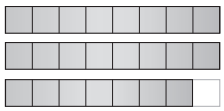


4. Which is greater: $\frac{1}{4}$ or $\frac{3}{4}$? _____



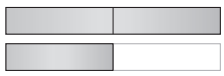
5. Which is greater: $3\frac{1}{3}$ or $2\frac{7}{8}$? _____

$3\frac{1}{3}$ 

$2\frac{7}{8}$ 

6. Which is greater: $1\frac{4}{5}$ or $1\frac{1}{2}$? _____

$1\frac{4}{5}$ 

$1\frac{1}{2}$ 

CHALLENGE

Write a mixed number between 3 and 4 that is greater than $3\frac{1}{2}$.

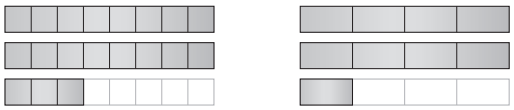
_____

Name _____ Date _____

RELATIONSHIPS AMONG NUMBERS

You can use models or draw pictures to compare fractions, mixed numbers, and decimals.

Which is greater: $2\frac{3}{8}$ or $2\frac{1}{4}$?



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

Both numbers have the same number in the ones place.
Compare the fractions: $\frac{3}{8}$ is greater than $\frac{1}{4}$.
So, the greater number is $2\frac{3}{8}$.

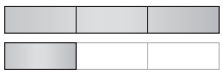
Which is greater: 1.09 or 1.7?

1.09 1.7

Both numbers have the same number in the ones place.
Compare the decimal parts: 0.7 is greater than 0.09.
So, the greater number is 1.7.

Use the models. Write the greater number.

1. Which is greater: $1\frac{1}{3}$ or $1\frac{4}{5}$?

$1\frac{1}{3}$ 

$1\frac{4}{5}$ 

_____

2. Which is greater: 1.52 or 1.38?

1.52 

1.38 

_____

Draw pictures to solve. Write the greater number.

3. Which is greater: $2\frac{1}{5}$ or $2\frac{1}{2}$?

_____

4. Which is greater: $1\frac{2}{3}$ or $1\frac{1}{4}$?

_____

5. Which is greater: 1.9 or 1.1?

_____

6. Which is greater: 2.3 or 2.5?

_____

CHALLENGE

Explain how to compare 3.1 and 2.6 without drawing pictures.

_____

_____

Name _____ Date _____

Discovery EDUCATION

RELATIONSHIPS AMONG NUMBERS

You can use place values to help you compare decimals.

Which is greater: 3.062 or 3.067?

Step 1: Line up the decimal points.

3.062
3.067

Step 2: Start at the left. Compare the digits in order from left to right.
The ones digits are the same.
The tenths digits are the same.
The hundredths digits are the same.

3.062
3.067

Step 3: Compare the thousandths digits.
$2 < 7$

3.062
3.067

$3.067 > 3.062$

Remember:
> means "is greater than."
< means "is less than."

You can compare fractions and decimals by writing the fraction as a decimal. Then compare the decimals.

Which is greater: $1\frac{3}{4}$ or 1.8?

Step 1: Divide the numerator of the fraction by the denominator.
$\frac{3}{4} = 3 \div 4 = 0.75$

Step 2: Compare 1.75 and 1.8.

1.75
1.80 ← Write an equivalent decimal.

$7 < 8$, so $1.8 > 1.75$

$1.8 > 1\frac{3}{4}$

Remember:
1.80 is equivalent to 1.8.

Compare. Write > or <.

1. 1.72 _____ 1.07

2. 2.6 _____ 1.9

3. 4.53 _____ 4.35

4. 3.205 _____ 3.052

5. 1.008 _____ 1.012

6. 1.091 _____ 1.109

7. 5.6 _____ 5.008

8. 6.04 _____ 6.104

9. 2.005 _____ 2.201

10. 0.1 _____ $\frac{1}{4}$

11. 1.3 _____ $1\frac{4}{5}$

12. $2\frac{3}{10}$ _____ 2.03

13. 1.6 _____ $1\frac{1}{8}$

14. $2\frac{1}{2}$ _____ 2.7

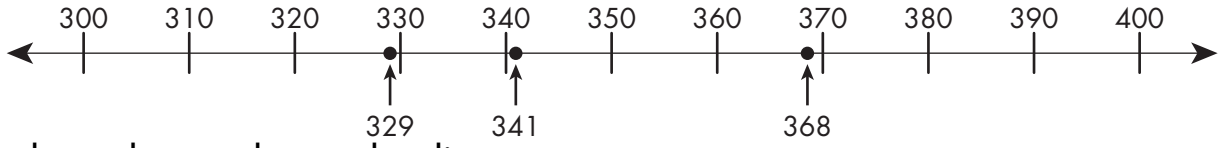
15. $\frac{35}{100}$ _____ 0.4

Name _____ Date _____

NUMBER MODELS

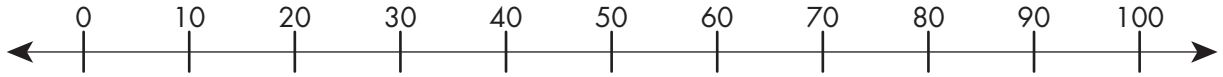
A number line can help you write numbers in order.

From least to greatest, the numbers on a number line appear from left to right.
Order from least to greatest: 368; 329; and 341.



Find each number on the number line.
From least to greatest the numbers are: 329; 341; and 368.

Order from least to greatest. Use the number line to help you.



1. 72, 91, 57 _____

2. 39, 17, 82 _____

3. 64, 26, 48 _____

4. 51, 22, 9 _____

Order from least to greatest. Use the number line to help you.

5. 763; 732; 795 _____

6. 743; 702; 724 _____

7. 739; 744; 721 _____

8. 725; 756; 716 _____

CHALLENGE

Order the following coins from least to greatest value:

nickel quarter penny dime

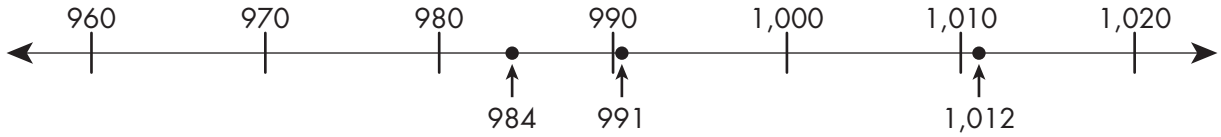
_____

Name _____ Date _____

NUMBER MODELS

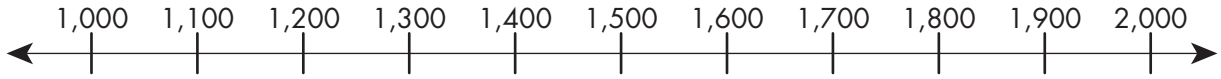
You can use a number line to help you order numbers.

Order from least to greatest: 991; 984; and 1,012.



Locate each number on the number line.
From least to greatest the numbers are: 984; 991; and 1,012.

Order from least to greatest. Use the number line to help you.



1. 1,640; 1,170; 1,390 _____

2. 1,510; 1,720; 1,260 _____

3. 1,940; 1,480, 1,890 _____

4. 1,080; 1,860; 1,610 _____

Order from greatest to least.

5. 763; 459; 842 _____

6. 5,092; 5,932; 5,329 _____

7. 1,004; 862; 998 _____

8. 2,030; 2,009; 2,100 _____

CHALLENGE

Delia has 5 quarters. Jeremy has 8 dimes. Allie has a $1-bill.

Who has the greatest amount? _____

Who has the least amount? _____

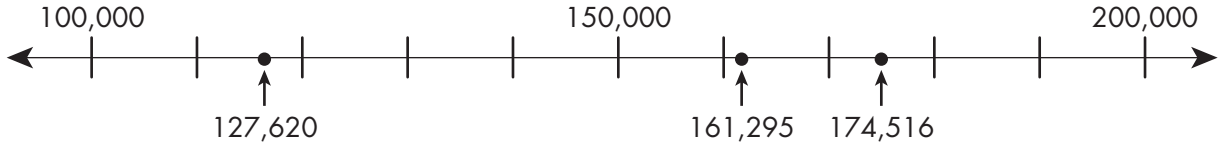
Name _____ Date _____

Discovery EDUCATION

NUMBER MODELS

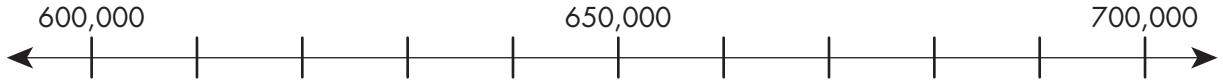
Thinking about where numbers appear on a number line can help you order numbers.

Order from least to greatest: 161,295; 174,516; 127,620



From least to greatest the numbers are 127,620; 161,295, and 174,516.

Order from least to greatest. Use the number line to help you.



1. 643,000; 629,000; 681,000 _____

2. 692,000; 674,000; 618,000 _____

3. 605,320; 650,190; 632,500 _____

4. 660,840; 673,090; 628,900 _____

Order from greatest to least.

5. 18,035; 18,503; 18,530 _____

6. 52,094; 29,782; 71,931 _____

7. 420,837; 409,755; 412,836 _____

8. 2,001,300; 320,100; 3,000,100 _____

9. 1,003,000; 1,100,300; 1,310,000 _____

10. 4,002,000; 742,000; 2,700,400 _____

CHALLENGE

Which amount of money is the greatest and which is the least: 10 quarters, 15 nickels, or 20 dimes?

_____

DISCOVERING MATH

LEVEL 3

Name _____ Date _____

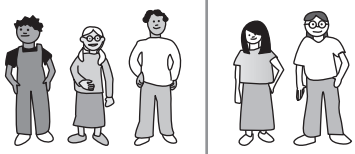
PRIME OR COMPOSITE

3 children
There is only 1 group.
3 is a **prime number**.

4 children
There are 2 equal groups.
4 is a **composite number**.

7 children
There are 2 unequal groups.
7 is a **prime number**.

Circle prime number or composite number.



1. prime number composite number
[prime number]

2. prime number composite number
[composite number]

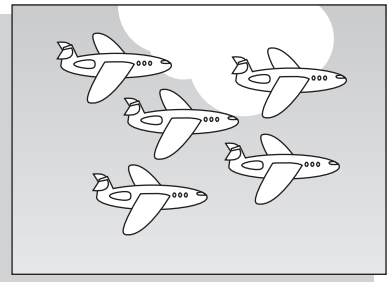
3. prime number composite number
[prime number]

4. prime number composite number
[composite number]

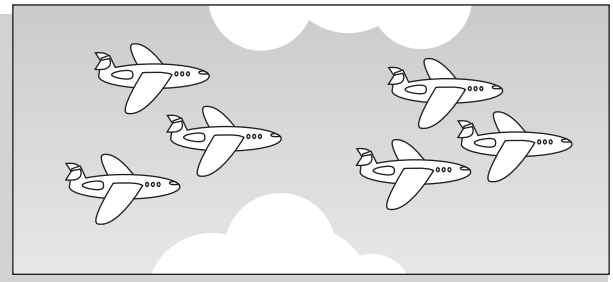
Name _____ Date _____

PRIME OR COMPOSITE

Look at these numbers of planes in groups.



5 planes.
You can only make one same-sized group.
5 is a **prime number**.



6 planes.
You can make more than one same-sized group.
6 is a **composite number**.

Draw as many same-sized groups of planes as you can for each number.
Write prime number or composite number. [Check student's drawing.]

1. 4

[composite number]

2. 7

[prime number]

3. 8

[composite number]

4. 9

[composite number]

5. 10

[composite number]

Name _____ Date _____

PRIME OR COMPOSITE

A prime number has exactly two different factors, itself and 1.

Example: 7
Factors: 1 and 7

A composite number has more than two different factors.

Example: 12
Factors: 1, 2, 3, 4, 6, and 12

Color the prime numbers in the table red.
Remember 1 is not a prime number.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

[anno: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97]

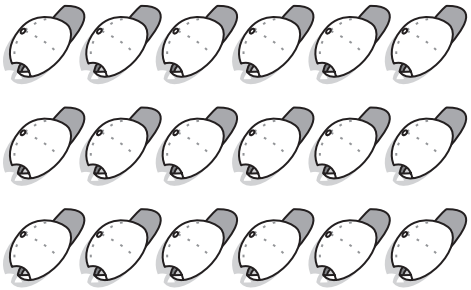
CHALLENGE

What is the first prime number after 100? _____ [101]

What is the first composite number after 100? _____ [102]

Name _____ Date _____

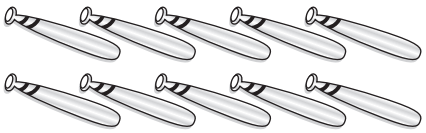
FACTORS AND MULTIPLES



The array shows that 3 x 6 = 18.
The numbers that are multiplied, 3 and 6, are called the **factors**.
The product, 18, is a **multiple** of 3 and a **multiple** of 6.

Even numbers end in 0, 2, 4, 6, or 8. So, 6 and 18 are even numbers.
Odd numbers end in 1, 3, 5, 7, or 9. So, 3 is an odd number.

Use each array to complete the sentences.

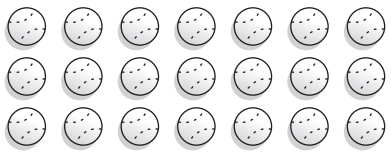


2 x 5 = 10

The factors are _____ and _____. [2; 5]

A multiple of _____ and _____ is _____. [2; 5; 10]

Even numbers: _____ Odd numbers: _____ [Even: 2, 10. Odd: 5]



3 x 7 = 21

The factors are _____ and _____. [3; 7]

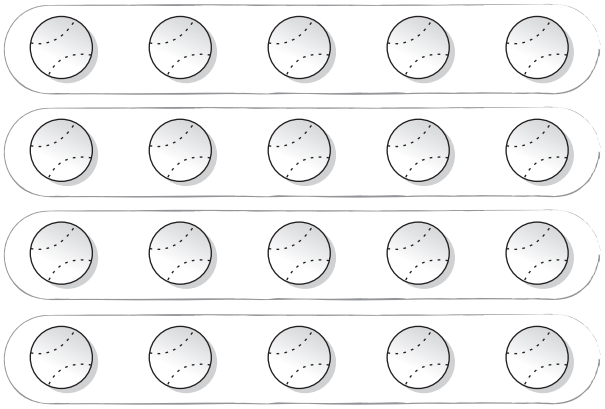
A multiple of _____ and _____ is _____. [3; 7; 21]

Even numbers: _____ Odd numbers: _____ [Even: none. Odd: 3; 7; 21]

Name _____ Date _____

FACTORS AND MULTIPLES

Look at these groups of baseballs.



You can multiply to find how many baseballs there are in all.

$$4 \times 5 = 20$$

factor factor product

The product of a whole number and any other whole number is a **multiple** of the whole numbers. So, 20 is a multiple of 4 and a multiple of 5.

Even numbers end in 0, 2, 4, 6, or 8. So, 4 and 20 are even numbers.
Odd numbers end in 1, 3, 5, 7, or 9. So, 5 is an odd number.

Complete each number sentence.
Tell if the missing number is odd or even.
Then complete the sentences. Write *factor* or *multiple*.

1. 3 x 5 = [15] [odd] A [multiple] of 3 and 5 is [15].

2. 6 x [4] = 24 [even] A [factor] of 24 is [6 or 4].

3. [3] x 4 = 12 [odd] A [factor] of 12 is [3 or 4].

4. 9 x 2 = [18] [even] A [multiple] of 9 and 2 is [18].

5. [7] x 3 = 21 [odd] A [factor] of 21 is [7 or 3].

6. 5 x [6] = 30 [even] A [factor] of 30 is [5 or 6].

Name _____ Date _____

Discovery EDUCATION

FACTORS AND MULTIPLES

The numbers that are multiplied to give the product of a number are called **factors**.

The factors of a number also evenly divide the number.

A number with more than two factors is a **composite** number.

The product of a whole number and any other whole number is a **multiple** of the whole numbers.

Example: 1 x 18 = 18, 2 x 9 = 18, 3 x 6 = 18
The factors of 18 are 1, 2, 3, 6, 9, and 18.
18 is a composite number since
it has more than two factors.
18 is a multiple of 2 and 9. It is also a multiple of 3 and 6.

If you can divide a number evenly by 2, the number is **even**.
If the remainder is 1 when you divide by 2,
the number is **odd**.

Examples: 18 ÷ 2 = 9, so 18 is even.
19 ÷ 2 = 9 R1, so 19 is odd.

List all the factors of each number. Is the number odd or even?

1. 16 [1, 2, 4, 8, 16] _____
Odd or Even? _____ [even]

2. 15 [1, 3, 5, 15] _____
Odd or Even? _____ [odd]

3. 12 [1, 2, 3, 4, 6, 12] _____
Odd or Even? _____ [even]

4. 30 [1, 2, 3, 5, 6, 10, 15, 30] _____
Odd or Even? _____ [even]

5. 35 [1, 5, 7, 35] _____
Odd or Even? _____ [odd]

6. 45 [1, 3, 5, 9, 15, 45] _____
Odd or Even? _____ [odd]

Write a multiple of each pair of numbers. [Possible answers are given.]

7. 3 and 5 _____ [15]

8. 4 and 6 _____ [12]

9. 3 and 10 _____ [30]

10. 5 and 9 _____ [45]

CHALLENGE

What factors do 18 and 42 have in common? _____ [2, 3, 6]

What is the least common multiple of 6 and 8
(the least number that is a multiple of both numbers)? _____ [24]

DISCOVERING MATH
LEVEL 3

Name _____ Date _____

EQUIVALENT FRACTIONS AND DECIMALS

You can use a fraction or a decimal to name the part of a hundred.

Fraction

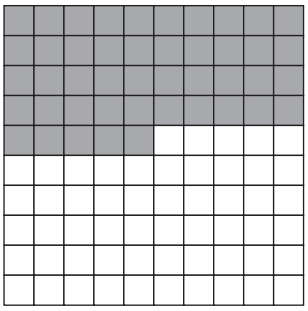
$\frac{45}{100}$

The numerator tells the number of parts that are shaded.

The denominator tells the total number of parts: 100.

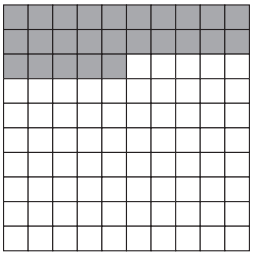
Decimal

0.45 decimal point



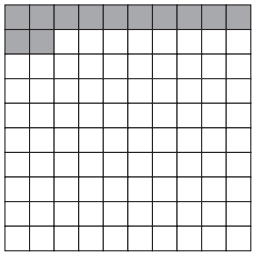
Write the fraction and decimal for each model.

1.



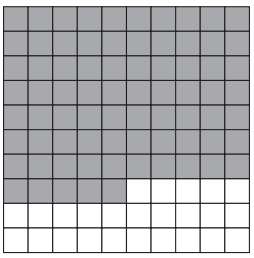
[$\frac{25}{100}$] [0.25]

2.



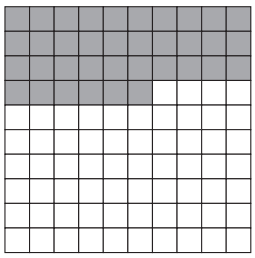
[$\frac{12}{100}$] [0.12]

3.



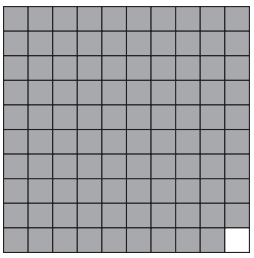
[$\frac{75}{100}$] [0.75]

4.



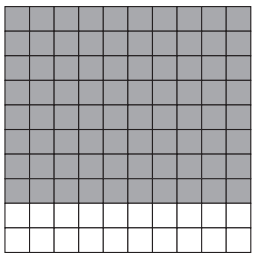
[$\frac{36}{100}$] [0.36]

5.



[$\frac{99}{100}$] [0.99]

6.

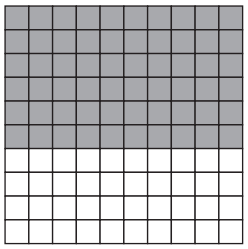


[$\frac{80}{100}$] [0.80]

Name _____ Date _____

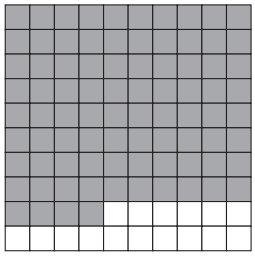
EQUIVALENT FRACTIONS AND DECIMALS

Equivalent fractions and decimals name the same amount.

Fraction $\frac{6}{10}$		**Fraction** $\frac{60}{100}$	
Decimal 0.6		**Decimal** 0.60	

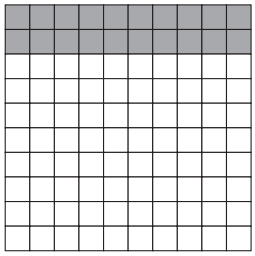
Write a fraction and decimal for each model.

1.



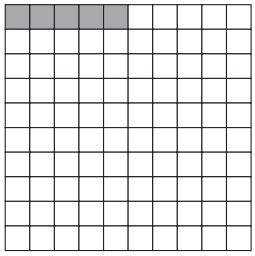
[$\frac{84}{100}$] _____ [0.84] _____

2.



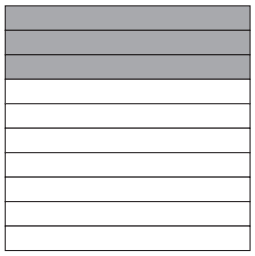
[$\frac{20}{100}$ or $\frac{2}{10}$] _____ [0.20 or 0.2] _____

3.



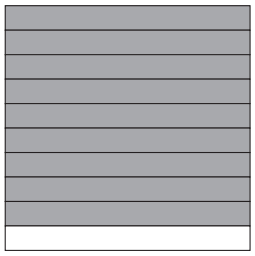
[$\frac{5}{100}$] _____ [0.05] _____

4.



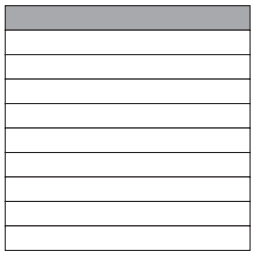
[$\frac{3}{10}$] _____ [0.3] _____

5.



[$\frac{9}{10}$] _____ [0.9] _____

6.



[$\frac{1}{10}$] _____ [0.1] _____

Name _____ Date _____

EQUIVALENT FRACTIONS AND DECIMALS

You can use money to relate equivalent fractions, decimals, and percents.

A quarter of a dollar is \$0.25 or 25 cents out of 100 cents.

Decimal: 0.25 **Fraction:** $\frac{25}{100}$ **Percent:** 25%

To write an equivalent percent, write the part of a hundred with the percent symbol: %.

Notice that 25% is the same part of a dollar as 25 cents.

Complete the table. Write a decimal, a fraction, and a percent of a dollar for each amount.

COINS	DECIMAL	FRACTION	PERCENT
1. 1 dime	[0.1 or 0.10]	[$\frac{1}{10}$ or $\frac{10}{100}$]	[10%]
2. 1 nickel	[0.05]	[$\frac{5}{100}$ or $\frac{1}{20}$]	[5%]
3. 1 penny	[0.01]	[$\frac{1}{100}$]	[1%]
4. 3 dimes	[0.3 or 0.30]	[$\frac{3}{10}$ or $\frac{30}{100}$]	[30%]
5. 3 nickels	[0.15]	[$\frac{15}{100}$ or $\frac{3}{20}$]	[15%]
6. 3 pennies	[0.03]	[$\frac{3}{100}$]	[3%]
7. 2 quarters	[0.5 or 0.50]	[$\frac{5}{10}$ or $\frac{50}{100}$ or $\frac{1}{2}$]	[50%]
8. 3 quarters	[0.75]	[$\frac{75}{100}$ or $\frac{3}{4}$]	[75%]
9. 8 dimes	[0.8 or 0.80]	[$\frac{8}{10}$ or $\frac{80}{100}$ or $\frac{4}{5}$]	[80%]
10. 4 quarters	[1 or 1.00]	[$\frac{100}{100}$]	[100%]

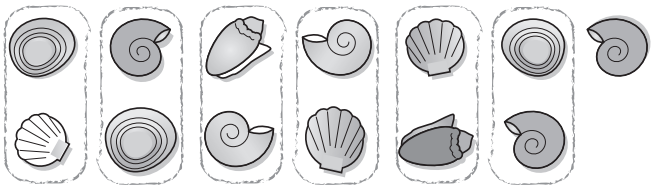
Name _____ Date _____

ODD AND EVEN NUMBERS

Even numbers can be divided equally into pairs.

The number 12 is even.

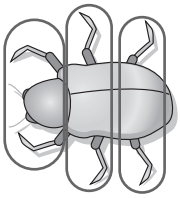
Odd numbers cannot be divided equally into pairs. There is always a remainder.



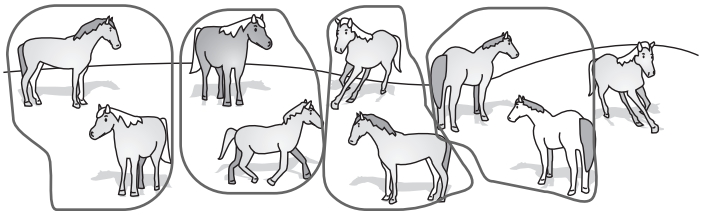
The number 13 is odd.

Tell whether the number is odd or even. Make pairs to show why.

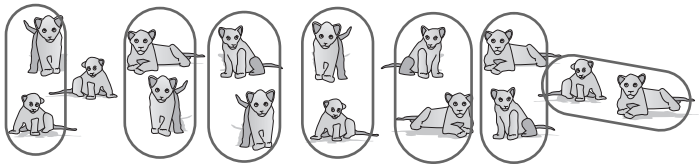
1. A beetle has 6 legs.
Is the number 6 odd or even? [even]



2. There are 9 horses in the pasture.
Is the number 9 odd or even? [odd]



3. There are 15 lion cubs in the pride.
Is the number 15 odd or even? [odd]



CHALLENGE

Complete each sentence.
Choose from the numbers 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9.
You may draw pictures to help you decide.

Even numbers end in _____. [0, 2, 4, 6, 8]

Odd numbers end in _____. [1, 3, 5, 7, 9]

Is the number 85 odd or even? _____ [odd]

Is the number 90 odd or even? _____ [even]

Name _____ Date _____

Discovery EDUCATION

ODD AND EVEN NUMBERS

Even numbers *end* in 0, 2, 4, 6, or 8.
76 and 390 are even numbers.

Odd numbers *end* in 1, 3, 5, 7, or 9.
41 and 867 are odd numbers.

Write if the number is odd or even.

1. 35 _____ [odd]

2. 629 _____ [odd]

3. 754 _____ [even]

4. 2,081 _____ [odd]

5. 7,496 _____ [even]

6. 11,950 _____ [even]

Add or subtract.
Tell if the numbers in each exercise are odd or even.
Is the sum or difference odd or even?

7. 35 + 11 = _____ [46] odd + odd = _____ [even]

8. 24 + 30 = _____ [54] _____ [even + even = even]

9. 41 + 8 = _____ [49] _____ [odd + even = odd]

10. 24 + 37 = _____ [61] _____ [even + odd = odd]

11. 45 − 3 = _____ [42] _____ [odd − odd = even]

12. 58 − 52 = _____ [6] _____ [even − even = even]

13. 29 − 16 = _____ [13] _____ [odd − even = odd]

14. 76 − 51 = _____ [25] _____ [even − odd = odd]

CHALLENGE

Predict when the sum will be odd and when the sum will be even when you add odd or even numbers. [When both numbers you add are even or both are odd, the sum is even. When one number is odd and the other number is even, the sum is odd.]

Predict when the difference will be odd and when the difference will be even when you subtract using odd or even numbers. [When both numbers you use in a subtraction are even or both are odd, the difference is even. When one number is odd and the other number is even, the difference is odd.]

DISCOVERING MATH LEVEL 2

Name _____ Date _____

Discovery EDUCATION

ODD AND EVEN NUMBERS

If you can divide a number evenly by 2, the number is **even**.
Even numbers end in 0, 2, 4, 6, or 8.

If the remainder is 1 when you divide by 2, the number is **odd**.
Odd numbers end in 1, 3, 5, 7, or 9.

Answer each question. Use examples to illustrate each answer.

1. Is the sum of two even numbers odd or even? [even]
Is the difference between two even numbers odd or even? [even]
Examples: [Possible examples: 8 + 6 = 14; 8 − 6 = 2]

2. Is the sum of two odd numbers odd or even? [even]
Is the difference between two odd numbers odd or even? [even]
Examples: [Possible examples: 5 + 3 = 8; 5 − 3 = 2]

3. Is the sum of an even number and an odd number odd or even? [odd]
Is the difference between an even number and an odd number odd or even? [odd]
Examples: [Possible examples: 8 + 3 = 11; 8 − 3 = 5]

4. Is the sum of an odd number and an even number odd or even? [odd]
Is the difference between an odd number and an even number odd or even? [odd]
Examples: [Possible examples: 7 + 2 = 9; 7 − 2 = 5]

5. Is the product of two even numbers odd or even? [even]
Examples: [Possible examples: 4 × 2 = 8; 6 × 6 = 36]

6. Is the product of two odd numbers odd or even? [odd]
Examples: [Possible examples: 3 × 5 = 15; 1 × 9 = 9]

7. Is the product of an odd number and an even number odd or even? [even]
Examples: [Possible examples: 3 × 2 = 6; 5 × 4 = 20]

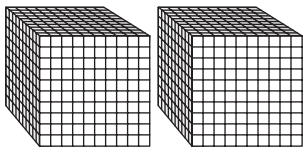
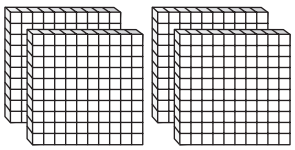
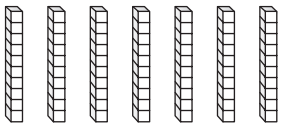
DISCOVERING MATH
LEVEL 3

Name _____ Date _____

Discovery EDUCATION

PLACE VALUE

You can use models to show numbers.

MODELS			
			
2 Thousands	**4 Hundreds**	**7 Tens**	**5 Ones**

Number: 2,475 A comma separates the thousands and the hundreds.

You can also use a place-value chart to show numbers.
A place-value chart can help you understand the value of each digit in a number.

PLACE-VALUE CHART			
Thousands	**Hundreds**	**Tens**	**Ones**
2	4	7	5
The 2 is in the thousands place. The value of the 2 is 2,000.	The 4 is in the hundreds place. The value of the 4 is 400.	The 7 is in the tens place. The value of the 7 is 70.	The 5 is in the ones place. The value of the 5 is 5.

Write the value of each underlined digit.

1. 4̲6 _____ [40]

2. 5,3̲27 _____ [300]

3. 15̲6 _____ [6]

4. 1̲,763 _____ [1,000]

5. 7̲39 _____ [700]

6. 9̲1 _____ [1]

7. 4,5̲20 _____ [20]

8. 3̲,124 _____ [3,000]

Solve.

9. What number has 6 thousands, 3 hundreds, 1 ten, and 4 ones? [6,314]

CHALLENGE

What number has 3 thousands, 2 more hundreds than thousands, and no tens or ones? [3,500]

What number has 4 tens, 6 thousands, 3 ones, and 7 hundreds? [6,743]

DISCOVERING MATH LEVEL 1

Name _____ Date _____

Discovery EDUCATION

PLACE VALUE

A place-value chart shows the value of each digit in a number.

THOUSANDS			ONES		
Hundreds	Tens	Ones	Hundreds	Tens	Ones
2	5	4	1	3	8

The place-value chart shows two periods.
Commas are used to separate numbers into periods.
Each period is divided into hundreds, tens, and ones.

Standard form: 254,138
Expanded form: 200,000 + 50,000 + 4,000 + 100 + 30 + 8

Write each number in expanded form.

1. 8,240 [8,000 + 200 + 40]

2. 36,019 [30,000 + 6,000 + 10 + 9]

3. 700,546 [700,000 + 500 + 40 + 6]

4. 941,203 [900,000 + 40,000 + 1,000 + 200 + 3]

Write each number in standard form.

5. 20,000 + 7,000 + 80 [27,080]

6. 500,000 + 3,000 + 200 [503,200]

7. 400,000 + 10,000 + 5,000 + 6 [415,006]

8. 30,000 + 90 + 4 [30,094]

CHALLENGE

What number is 1,000 less than 6,312? [5,312]

What number is 10,000 more than 376,204? [386,204]

Name _____ Date _____

Discovery EDUCATION

PLACE VALUE

A place-value chart can help you read and write numbers in the millions.

MILLIONS			THOUSANDS			ONES		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones
4	0	2	0	6	3	9	0	0

Standard form: 402,063,900
Word form: four hundred two million, sixty-three thousand, nine hundred
Short word form: 402 million, 63 thousand, 900

Write the standard form for each number.

1. seven million, three hundred four thousand, ten [7,304,010]

2. twelve million, nine thousand, sixty-two [12,009,062]

3. six hundred four thousand, four hundred eight [604,408]

4. one hundred fifty-nine million, three hundred [159,000,300]

5. one million, ninety-two thousand, eight hundred one [1,092,801]

Write each number in word form.

6. 8,210,050 [eight million, two hundred ten thousand, fifty]

7. 30,007,200 [thirty million, seven thousand, two hundred]

8. 14,806,000 [fourteen million, eight hundred six thousand]

9. 702,050,000 [seven hundred two million, fifty thousand]

10. 652,001,000 [six hundred fifty-two million, one thousand]

CHALLENGE

What number is 1,000,000 more than 11 million, 1 thousand, ten?

[12,001,010]

What number is 10,000 less than 1 million, 235 thousand?

[1,225,000]

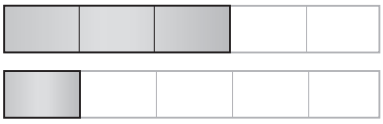
DISCOVERING MATH LEVEL 3

Name _____ Date _____

RELATIONSHIPS AMONG NUMBERS

You can use models to compare fractions and mixed numbers.

Which is greater: $\frac{3}{5}$ or $\frac{1}{5}$?



$\frac{3}{5}$ is greater than $\frac{1}{5}$.

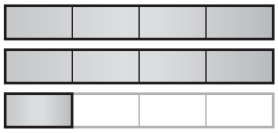
Which is greater: $\frac{2}{5}$ or $\frac{5}{8}$?

$\frac{5}{8}$ is greater than $\frac{2}{5}$.

Which is greater: $2\frac{1}{4}$ or $1\frac{3}{4}$?

Method 1:

From the models, $2\frac{1}{4}$ is greater than $1\frac{3}{4}$.

$2\frac{1}{4}$ 

$1\frac{3}{4}$ 

Method 2: The whole numbers are different.

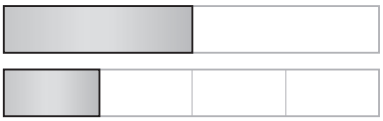
Compare the mixed numbers by comparing the whole numbers first.

2 is greater than 1, so $2\frac{1}{4}$ is greater than $1\frac{3}{4}$.

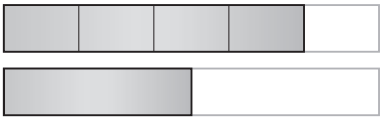
Write the greater number.

1. Which is greater: $\frac{1}{3}$ or $\frac{2}{3}$? [$\frac{2}{3}$]

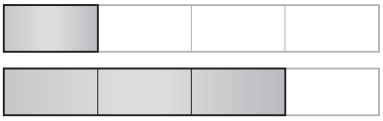
2. Which is greater: $\frac{1}{2}$ or $\frac{1}{4}$? [$\frac{1}{2}$]



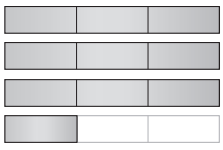
3. Which is greater: $\frac{4}{5}$ or $\frac{1}{2}$? [$\frac{4}{5}$]

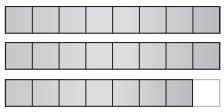


4. Which is greater: $\frac{1}{4}$ or $\frac{3}{4}$? [$\frac{3}{4}$]



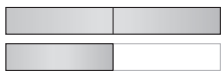
5. Which is greater: $3\frac{1}{3}$ or $2\frac{7}{8}$? [$3\frac{1}{3}$]

$3\frac{1}{3}$ 

$2\frac{7}{8}$ 

6. Which is greater: $1\frac{4}{5}$ or $1\frac{1}{2}$? [$1\frac{4}{5}$]

$1\frac{4}{5}$ 

$1\frac{1}{2}$ 

CHALLENGE

Write a mixed number between 3 and 4 that is greater than $3\frac{1}{2}$.

[Possible answer: $3\frac{7}{8}$]

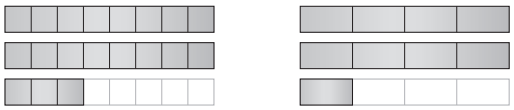
Name _____ Date _____

Discovery EDUCATION

RELATIONSHIPS AMONG NUMBERS

You can use models or draw pictures to compare fractions, mixed numbers, and decimals.

Which is greater: $2\frac{3}{8}$ or $2\frac{1}{4}$?



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

Both numbers have the same number in the ones place.
Compare the fractions: $\frac{3}{8}$ is greater than $\frac{1}{4}$.
So, the greater number is $2\frac{3}{8}$.

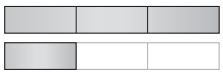
Which is greater: 1.09 or 1.7?

1.09 1.7

Both numbers have the same number in the ones place.
Compare the decimal parts: 0.7 is greater than 0.09.
So, the greater number is 1.7.

Use the models. Write the greater number.

1. Which is greater: $1\frac{1}{3}$ or $1\frac{4}{5}$?

$1\frac{1}{3}$ 

$1\frac{4}{5}$ 

_____ [$1\frac{4}{5}$]

2. Which is greater: 1.52 or 1.38?

1.52 

1.38 

_____ [1.52]

Draw pictures to solve. Write the greater number. [Check students' drawings.]

3. Which is greater: $2\frac{1}{5}$ or $2\frac{1}{2}$?

_____ [$2\frac{1}{2}$]

4. Which is greater: $1\frac{2}{3}$ or $1\frac{1}{4}$?

_____ [$1\frac{2}{3}$]

5. Which is greater: 1.9 or 1.1?

_____ [1.9]

6. Which is greater: 2.3 or 2.5?

_____ [2.5]

CHALLENGE

Explain how to compare 3.1 and 2.6 without drawing pictures.

[Possible answer: Compare the whole number parts of each number. Since 3 is greater than 2, 3.1 is greater than 2.6.]

DISCOVERING MATH LEVEL 2

Name _____ Date _____

Discovery EDUCATION

RELATIONSHIPS AMONG NUMBERS

You can use place values to help you compare decimals.

Which is greater: 3.062 or 3.067?

Step 1: Line up the decimal points.

3.062
3.067

Step 2: Start at the left. Compare the digits in order from left to right.
The ones digits are the same.
The tenths digits are the same.
The hundredths digits are the same.

3.062
3.067

Step 3: Compare the thousandths digits.
$2 < 7$

3.062
3.067

$3.067 > 3.062$

Remember:
> means "is greater than."
< means "is less than."

You can compare fractions and decimals by writing the fraction as a decimal. Then compare the decimals.

Which is greater: $1\frac{3}{4}$ or 1.8?

Step 1: Divide the numerator of the fraction by the denominator.
$\frac{3}{4} = 3 \div 4 = 0.75$

Step 2: Compare 1.75 and 1.8.

1.75
1.80 ← Write an equivalent decimal.

$7 < 8$, so $1.8 > 1.75$

$1.8 > 1\frac{3}{4}$

Remember:
1.80 is equivalent to 1.8.

Compare. Write > or <.

1. 1.72 ___>___ 1.07

2. 2.6 ___>___ 1.9

3. 4.53 ___>___ 4.35

4. 3.205 ___>___ 3.052

5. 1.008 ___<___ 1.012

6. 1.091 ___<___ 1.109

7. 5.6 ___>___ 5.008

8. 6.04 ___<___ 6.104

9. 2.005 ___<___ 2.201

10. 0.1 ___<___ $\frac{1}{4}$

11. 1.3 ___<___ $1\frac{4}{5}$

12. $2\frac{3}{10}$ ___>___ 2.03

13. 1.6 ___>___ $1\frac{1}{8}$

14. $2\frac{1}{2}$ ___<___ 2.7

15. $\frac{35}{100}$ ___<___ 0.4

DISCOVERING MATH

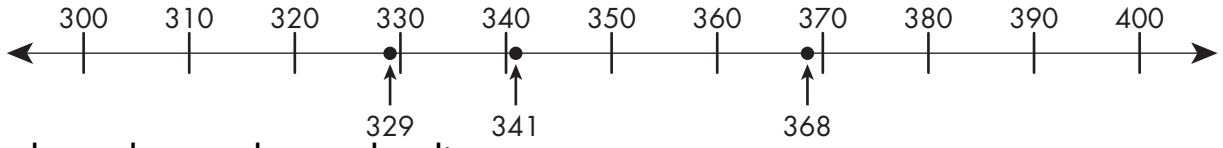
LEVEL 3

Name _____ Date _____

NUMBER MODELS

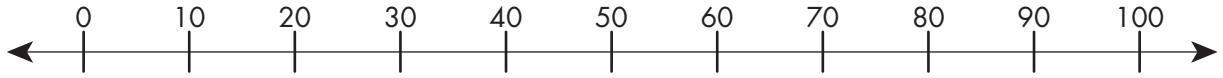
A number line can help you write numbers in order.

From least to greatest, the numbers on a number line appear from left to right.
Order from least to greatest: 368; 329; and 341.



Find each number on the number line.
From least to greatest the numbers are: 329; 341; and 368.

Order from least to greatest. Use the number line to help you.



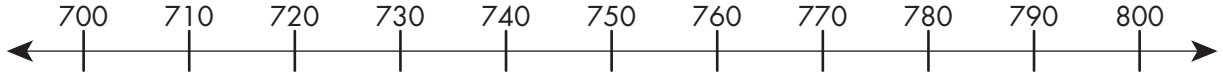
1. 72, 91, 57 _____ [57, 72, 91]

2. 39, 17, 82 _____ [17, 39, 82]

3. 64, 26, 48 _____ [26, 48, 64]

4. 51, 22, 9 _____ [9, 22, 51]

Order from least to greatest. Use the number line to help you.



5. 763; 732; 795 _____ [732, 763, 795]

6. 743; 702; 724 _____ [702, 724, 743]

7. 739; 744; 721 _____ [721, 739, 744]

8. 725; 756; 716 _____ [716, 725, 756]

CHALLENGE

Order the following coins from least to greatest value:

nickel quarter penny dime

_____ [penny, nickel, dime, quarter]

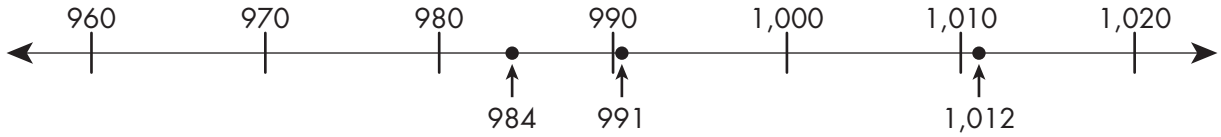
Name _____ Date _____

Discovery EDUCATION

NUMBER MODELS

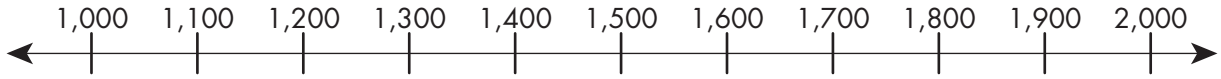
You can use a number line to help you order numbers.

Order from least to greatest: 991; 984; and 1,012.



Locate each number on the number line.
From least to greatest the numbers are: 984; 991; and 1,012.

Order from least to greatest. Use the number line to help you.



1. 1,640; 1,170; 1,390 _____ [1,170; 1,390; 1,640]

2. 1,510; 1,720; 1,260 _____ [1,260; 1,510; 1,720]

3. 1,940; 1,480, 1,890 _____ [1,480; 1,890; 1,940]

4. 1,080; 1,860; 1,610 _____ [1,080; 1,610; 1,860]

Order from greatest to least.

5. 763; 459; 842 _____ [842; 763; 459]

6. 5,092; 5,932; 5,329 _____ [5,932; 5,329; 5,092]

7. 1,004; 862; 998 _____ [1,004; 998; 862]

8. 2,030; 2,009; 2,100 _____ [2,100; 2,030; 2,009]

CHALLENGE

Delia has 5 quarters. Jeremy has 8 dimes. Allie has a $1-bill.

Who has the greatest amount? _____ [Delia]

Who has the least amount? _____ [Jeremy]

DISCOVERING MATH LEVEL 2

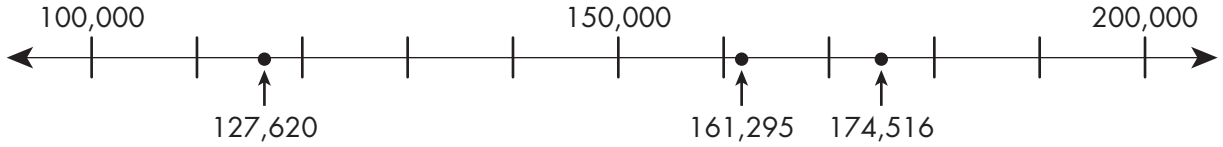
Name _____ Date _____

Discovery EDUCATION

NUMBER MODELS

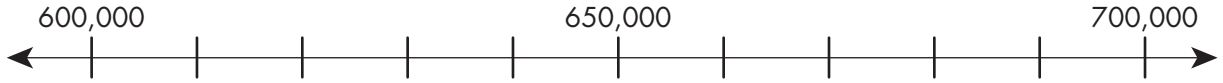
Thinking about where numbers appear on a number line can help you order numbers.

Order from least to greatest: 161,295; 174,516; 127,620



From least to greatest the numbers are 127,620; 161,295, and 174,516.

Order from least to greatest. Use the number line to help you.



1. 643,000; 629,000; 681,000 [629,000; 643,000; 681,000]

2. 692,000; 674,000; 618,000 [618,000; 674,000; 692,000]

3. 605,320; 650,190; 632,500 [605,320; 632,500; 650,190]

4. 660,840; 673,090; 628,900 [628,900; 660,840; 673,090]

Order from greatest to least.

5. 18,035; 18,503; 18,530 [18,530; 18,503; 18,035]

6. 52,094; 29,782; 71,931 [71,931; 52,094; 29,782]

7. 420,837; 409,755; 412,836 [420,837; 412,836; 409,755]

8. 2,001,300; 320,100; 3,000,100 [3,000,100; 2,001,300; 320,100]

9. 1,003,000; 1,100,300; 1,310,000 [1,310,000; 1,100,300; 1,003,000]

10. 4,002,000; 742,000; 2,700,400 [4,002,000; 2,700,400; 742,000]

CHALLENGE

Which amount of money is the greatest and which is the least: 10 quarters, 15 nickels, or 20 dimes?

[greatest: 10 quarters; least 15 nickels]

DISCOVERING MATH LEVEL 3