Name: _____ HomeRoom Teacher: _____

Margaret White 8th Grade ELA

StudySync Think Questions
Directions: Read the poem A Poison Tree by William Blake. Answer the Think Questions on a separate sheet of paper or complete on a Google Doc and submit to Google Classroom. Also Complete the Word Choice - Your Turn. The Define and Model have been given to you, remember to **Annotate** all things you read.

Question 1

What emotion does the speaker discuss over the course of the poem? What accounts for the differences in the way he expresses it or deals with it? Support your answer with textual evidence.

Question 2

How does the speaker of the poem behave toward others when he is angry at them? Support your inference with textual evidence.

Question 3

What does the poem reveal about the foe? What does the poem **not** reveal about the foe? Support your answer with textual evidence.

Question 4

Use context to determine the meaning of the word **wrath** as it is used in "A Poison Tree." Write your definition of "wrath" here and tell how you found it.

Question 5

Use the context clues provided in the passage to determine the meaning of **beheld.** You may also use your knowledge of word forms. Write your definition of "beheld" here and tell how you got it.

Read

I was angry with my friend:
I told my **wrath,** my wrath did end.
I was angry with my foe:
I told it not, my wrath did grow.

And I water'd it in fears,
Night & morning with my tears;
And I sunned it with smiles,
And with soft **deceitful wiles.**

And it grew both day and night,
Till it bore an apple bright;
And my foe **beheld** it shine,
And he knew that it was mine,

And into my garden stole
When the night had **veil'd** the pole;
In the morning glad I see
My foe outstretch'd beneath the tree.

Annotations

Define

An allusion is a reference. It may be a reference to almost anything: a famous person, place, event, mythical figure, work of art or music, religious text, or a work of literature. In literature, an allusion is used to add meaning to a description. For example, in a story someone might be described as "a real Scrooge." This would be an allusion to Ebenezer Scrooge, the penny-pinching character in Charles Dickens's novel *A Christmas Carol*. Dickens's character is so famous that his name alone suggests stinginess—so the allusion implies that any person like him is stingy, too.

Some allusions are indirect. Think of the way Martin Luther King, Jr. opened his famous "I Have a Dream" speech, a plea for civil rights, in August, 1963: "Five score years ago," he began, and his audience was immediately reminded of another speech. King was making an allusion to Abraham Lincoln's "Gettysburg Address," which begins, "Four score and seven years ago." By making this allusion, King effectively suggested that there were similarities in these two speeches without overwhelming his own speech with historical details. Because an allusion makes reference to something *other* than what is directly being described, you may sometimes be unsure what it implies.

Fortunately, today it is easy to look up the names of famous people, characters, places, events, works of art, and other things, to figure out the meaning of an allusion for yourself.

CA-CCSS: ❷ CA.RL.8.9

Model

Identification and Application:

- Allusions are present in many kinds of literature, including fiction, drama, and poetry.

- To determine whether an allusion is present and what the allusion refers to:
  - Use your prior knowledge. Many allusions throughout literature are to well-known elements of culture or history. These include traditional stories, religious works such as the Bible, and Greek myths. Readers who know the source of the allusion are more likely to understand why an author included it.

  - Notice the names or descriptions of people, places, or events that are not part of the action. They may be allusions.

  - Note any comparisons of characters or events in the selection to characters, people, or events that never appear again. For instance, if a character is described as having "the strength of Hercules," and Hercules is not a character in the story, then you can guess that Hercules is an allusion.

  - Look up any allusions in a source such as a dictionary or an online encyclopedia. Learn the important points about the person or thing being alluded to. Ask, *What qualities does this allusion give to the character, place, or event being described?*

  - As you read, notice whether the allusion runs throughout the text or is only present in one or a few passages. If the allusion keeps returning, you will know that the author intends for that allusion to inform his or her theme.

- To interpret an allusion:
  - Consider how the person or thing in the text is similar to and different from the person or thing alluded to. Sometimes, an allusion draws a contrast rather than a comparison. If a character is compared to Hercules in a positive way, the character is not only strong, but also may have other qualities of that mythological character.

  - Look at the context of the allusion in the text. Remember that authors use allusions to suggest larger ideas and themes.

- Allusion adds something extra to a poem, drama, or story. Understanding the allusion gives the reader a deeper, richer understanding of characters, events, and themes.

Model:

For as long as stories, plays, and poems have been shared, authors of literature have relied on cultural **allusions** as an easy shortcut to help their audiences understand a character, situation, or theme. In the plays of William Shakespeare, for example, there are allusions to the Bible, English history, and Greek

myths, just to name a few. In the centuries after Shakespeare, the poet and engraver William Blake, who published his collection of poems *Songs of Experience* in 1789, also included allusions to the Bible. The Bible was an important part of British culture, and the references the writers made would have been easily recognized and understood by their audiences.

For readers today, recognizing and understanding an allusion can be very difficult if we don't already know the **source** of the allusion. This is especially true when the allusion doesn't include a direct reference to a name or event. That's the case in Blake's poem "A Poison Tree."

Readers familiar with the Bible's Old Testament may already have an idea of the source of the poem's title. The allusion in "A Poison Tree" is to the story of Adam and Eve, the Garden of Eden, and the Fall of Man in the biblical *Book of Genesis*. Blake was very much interested in religion, and this was well known by the audience of his day. There is no specific mention of those narratives in "A Poison Tree," but the main object in these narratives is the Tree of Knowledge. In addition to his title, Blake returns to this allusion in the third and fourth stanzas. Fortunately for many readers, this biblical narrative is one of the most familiar **references** in Western civilization. It's so familiar that many readers almost automatically think of it when they read about an apple or a garden in a story or poem:

> And it grew both day and night.
> Till it bore an **apple** bright.
> And my foe beheld it shine,
> And he knew that it was mine.
>
> And into my **garden** stole…

This is an allusion is to the Garden of Eden, where a serpent tempted Eve to eat fruit from the Tree of Knowledge. In the narrative, God has forbidden Adam and Eve to taste the apples of this tree. Their punishment is to leave the garden, a place of paradise, and move out to manage life on Earth on their own. As a result, the apple has become a symbol of temptation, and the garden a symbol of paradise.

What might be the **interpretation** —the meaning for readers—of the Garden of Eden allusion in this poem? In other words, what does the speaker of "A Poison Tree" mean by his "apple" and "garden"? The title suggests that the speaker has deliberately poisoned the apple, and the stanzas suggest he has tempted his foe into eating it. He has "water'd it in fears" and nursed it until "it bore an apple bright."

> And into my garden stole,
> When the night had veil'd the pole;
> **In the morning glad I see**
> **My foe outstretched beneath the tree.**

Here Blake is also alluding to the Fall of Man. The result of Adam and Eve's disobedience was to become mortal, meaning they would die. In this poem, the result of eating the speaker's "apple" is death. The reader may infer that the speaker in "A Poison Tree" represents the serpent—the power of evil, for

example. In another interpretation, the real evil may be wrath itself. However readers interpret the poem, the biblical allusions will be an important key to understanding.

CA-CCSS: ❓ CA.RL.8.9

Your Turn

Read these stanzas from Blake's poems "A Poison Tree," "The Little Boy Lost," and "The Little Boy Found" and answer the follow-up questions.

from "A Poison Tree":

And it grew both day and night.
Till it bore an apple bright.
And my foe beheld it shine,
And he knew that it was mine.

And into my garden stole,
When the night had veil'd the pole;
In the morning glad I see
My foe outstretched beneath the tree.

from "The Little Boy Lost":

Father, father, where are you going
O do not walk so fast.
Speak father, speak to your little boy
Or else I shall be lost.

The night was dark, no father was there
The child was wet with dew.
The mire was deep, & the child did weep
And away the vapour flew.

from "The Little Boy Found":

The little boy lost in the lonely fen,
Led by the wand'ring light,
Began to cry; but God, ever nigh,
Appear'd like his father, in white.

He kissed the child, and by the hand led,
And to his mother brought,

Who in sorrow pale, thro' the lonely dale,

Her little boy weeping sought.

Part A

Think about the allusions in "A Poison Tree," "The Little Boy Lost," and "The Little Boy Found." What do they have in common?

- [ ] A. In all three poems, the speaker represents the power of evil, anger, and death.
- [ ] B. All three poems describe a "father" who stands for God and controls the characters' lives and, ultimately, their fates.
- [ ] C. The garden in "A Poison Tree" and the "lonely fen" or "lonely dale" in the other two poems all contain poisoned plants.
- [ ] D. The foe in "A Poison Tree" and the little boy in the other two poems are like Adam and Eve because they are innocents who suffer.

Part B

Which lines from the three poems support your answer?

- [ ] A. "My foe outstretched beneath the tree"; "The night was dark, no father was there"; and "The little boy lost in the lonely fen"
- [ ] B. "And it grew both day and night"; "Father, father where are you going"; and "Led by the wand'ring light"
- [ ] C. "And I water'd it in fears"; "Speak father, speak to your little boy"; and "Who in sorrow pale, thro' the lonely dale"
- [ ] D. "And into my garden stole"; "And away the vapour flew"; "but God, ever nigh,/ Appear'd like his father, in white"

Define

Thinking in terms of word relationships can help build your vocabulary. It can also help you to analyze and appreciate how carefully an author has chosen particular words to describe or express something.

One type of word relationship is denotation and connotation. Of course, all words have denotations, or dictionary definitions. But also knowing and understanding their connotations—the implied meanings that are not part of their dictionary definitions—can help you to identify the subtle differences between them. For example, the words *cheap* and *inexpensive* are synonyms: they have the same denotation *(not costly),* but their connotations are different. The word *cheap* usually has a negative connotation, implying that something is inexpensive but poorly made. By contrast, the word *inexpensive* has a neutral connotation: it doesn't make any judgment about quality.

Another good tool for thinking in terms of word relationships is to use analogies. An analogy is a comparison that illustrates an idea by comparing it to something that is already understood. You can use analogies to understand various types of word relationships, including synonyms and antonyms, item to category, part to whole, and cause to effect. For example, you know that synonyms are words that share the same denotation. So an analogy can be used to illustrate their different connotations: *Sad* is to *gloomy* as *happy* is to *cheerful.* Similarly, antonyms are words with opposite denotations. An analogy using antonyms might be: *Lively* is to *listless* as *happy* is to *sad.*

Model

Identification and Application:

- To use word relationships to help in understanding poetry:
  - Identify a poet's precise word choices, including words that are synonyms or antonyms.
  - Look for language that heightens or expands the emotional ideas in a poem.
- To identify synonyms and antonyms and understand their purpose:
  - Remember that synonyms often do not have the exact same connotation as one another. Shades of meaning make the difference between one synonym and another. The same is true of antonyms.
  - Note that over the course of a poem, word choices may become stronger to heighten or build the emotional content. Poets may use more vivid synonyms and antonyms to help develop their ideas.
  - Use synonyms and antonyms to understand unfamiliar words. For example, in the sentence, "The house was hideous on the outside, but beautiful on the inside," the signal word "but" is a clue that "hideous" means the opposite of "beautiful."
  - Refer to tools such as dictionaries and thesauruses to better understand the shades of meaning of related words.

Model:

In poetry, every word counts. All writers, and poets in particular, choose their words carefully in order to convey specific ideas and feelings. In "A Poison Tree" from his collection *Songs of Experience,* poet William Blake uses deceptively simple words and word relationships to develop powerful ideas. Let's look at the way the poet uses word relationships in the first two lines:

> I was **angry** with my friend;
> I told my **wrath,** my wrath did end.

The first line is clear: The speaker was "angry" with his friend. To understand the next line, the reader first needs to understand the relationship between the words "angry" and "wrath." They are closely related words. They're not precisely **synonyms,** because *angry* is an adjective and *wrath* is a noun. (If the words were *anger* and "wrath," they would be synonyms.) Still, their relationship in the lines tells a reader that the meaning of "wrath" has to do with being angry. Why did the poet choose the word "wrath" instead of "anger"? The word "wrath" is often used to express an exaggerated anger, which lets the reader know that the speaker's feeling toward his friend had been strong.

To show the opposite situation in the poem, Blake ends each line of the first stanza with matching pairs of **antonyms.**

> I was angry with my **friend;**
>
> I told my wrath, my wrath did **end.**
>
> I was angry with my **foe:**
>
> I told it not, my wrath did **grow.**

To understand the meaning of the word "foe" in line 3, the reader can look at the word "friend" in line 1. They are opposites, so a "foe" is an enemy. In the second line, the speaker says, "I told my wrath" to "my friend," and that brought it to an "end." In the fourth line, he says of his anger toward his foe, "I told it not," and the anger "did grow." While "grow" and "end" are not precise antonyms, *ending* is a contrast to *growing,* or continuing. In other words, not only does the speaker's "wrath" not end, it continues to "grow," or become stronger.

The poet, in his use of word relationships, establishes a powerful conflict in four brief lines. These lines set up the story of the poem, in which the speaker shares the results of his unspoken, angry feelings for his foe.

CA-CCSS: ❷ CA.L.8.5b

Word Relationships - A Poison Tree

Your Turn

Read this stanza of "A Poison Tree" and answer the follow-up questions.

And I water'd it in fears,
Night & morning with my tears:
And I sunned it with smiles,
And with soft deceitful wiles.

CA-CCSS: ❓ CA.L.8.5b

Part A

What two kinds of behaviors or actions does Blake contrast in this stanza?

- ☐ A. strong and weak
- ☐ B. negative and positive
- ☐ C. the speaker's and the foe's
- ☐ D. familiar and unusual

Part B

Which pair of related words signals the two kinds of behaviors or actions?

- ☐ A. "fears" and "wiles"
- ☐ B. "tears" and "smiles"
- ☐ C. "soft" and "deceitful"
- ☐ D. "water'd" and "sunned"

Create a Picture based on the poem. If an piece of Art was to be shown describing this poem, what would it be like? Create your own art piece. Upload to Google Classroom or Turn in when packets are returned

LESSON 1-2	**Sets of Real Numbers**

Reteach

Numbers can be organized into groups. Each number can be placed into one or more of the groups.

Real numbers include all rational and irrational numbers. All of the numbers that we use in everyday life are real numbers.

- If a real number can be written as a fraction, it is a **rational number**. If it cannot be written as a fraction, it is an **irrational number**.

- If a rational number is a whole number, or the opposite of a whole number, then it is an **integer**.

- If an integer is positive or 0, then it is a **whole number**.

You can use these facts to categorize any number.

A. What kind of number is 10?

Is it a real number? *Yes.*

Is it a rational number? Can it be written as a fraction? *Yes:* $\frac{10}{1}$

Is it an integer? Is it a whole number or the opposite of a whole number? *Yes.*

Is it a whole number? *Yes*.

So 10 is a real number, a rational number, an integer, and a whole number.

B. What kind of number is $\sqrt{\frac{9}{3}}$?

Is it a real number? *Yes.*

Is it a rational number? Can it be written as a fraction? *No.* $\frac{9}{3}$ *simplifies to 3. If you try to find the square root of 3, you will get a decimal answer that goes on forever but does not repeat: 1.7320508… This cannot be written as a fraction.*

So $\sqrt{\frac{9}{3}}$ is a real, irrational number.

Answer each question to identify the categories the given number belongs to.

$\sqrt{16}$

1. Is it a real number? _____

2. Is it a rational number? Can it be written as a fraction?

   _____

3. Is it an integer? Is it a whole number or the opposite of a whole number? _____

4. Is it a whole number? _____

5. List all of the categories $\sqrt{16}$ belongs to.

Name _____ Date _____ Class _____

Sets of Real Numbers

Reading Strategies: Use a Venn Diagram
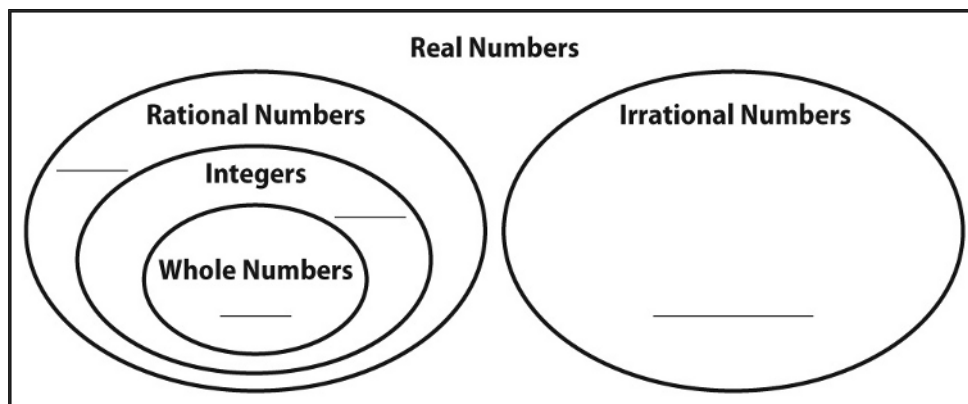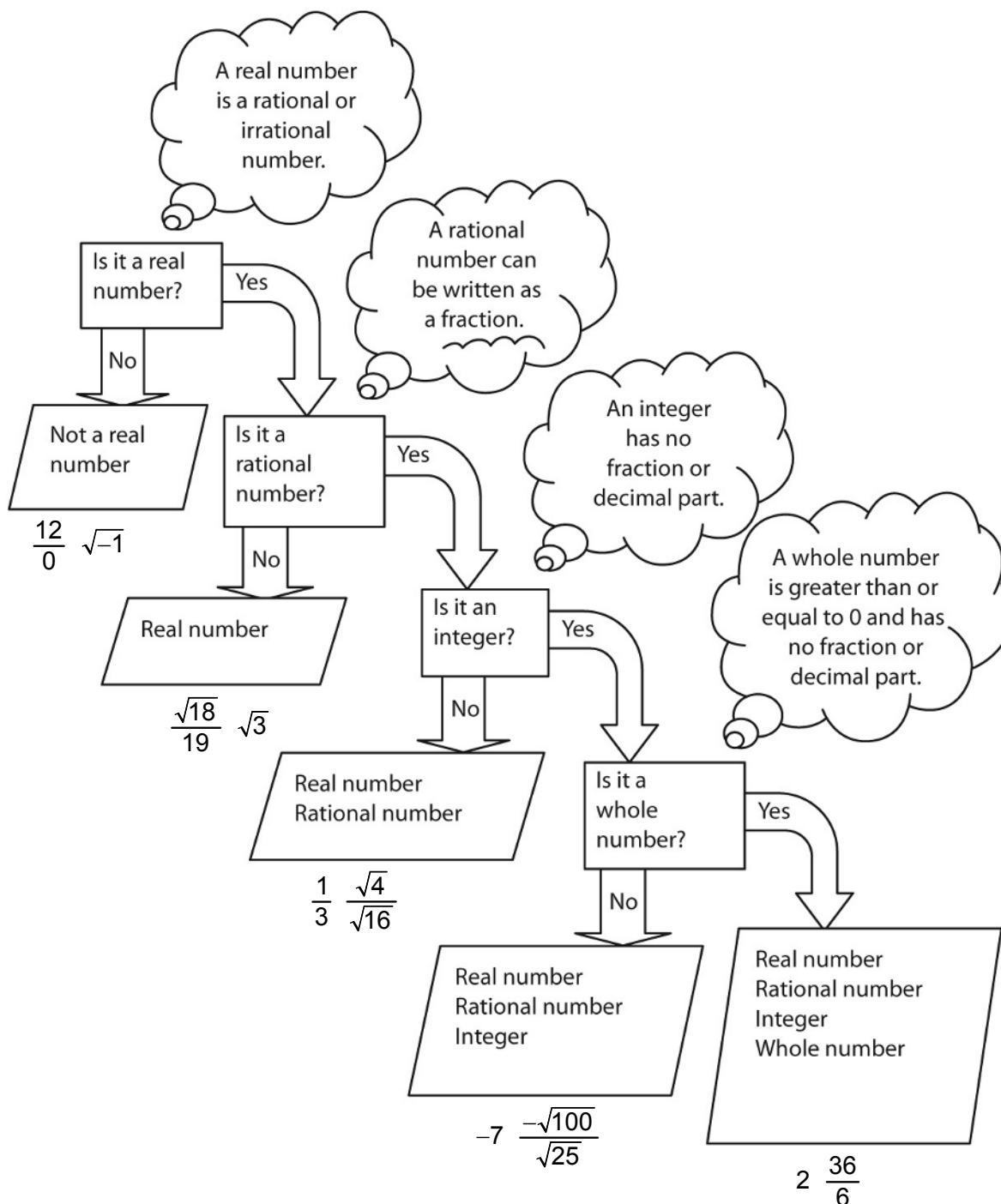

1. A real number is a _____ or an _____ number.

2. A rational number can be written as a _____ or a

   _____.

3. Both _____ and _____ decimals are rational
   numbers.

4. A set of integers is the set of _____ and _____
   whole numbers and zero.

5. The whole numbers are the set of _____ numbers and
   zero.

6. Place each number on the proper line on the Venn diagram.
   a. −5   b. 0.34   c. 11   d. π

LESSON 1-2

Sets of Real Numbers

Success for English Learners

Problem 1

A real number is a rational or irrational number.

Is it a real number?

A rational number can be written as a fraction.

Yes

No

Not a real number

$\frac{12}{0}$ $\sqrt{-1}$

Is it a rational number?

Yes

An integer has no fraction or decimal part.

No

Real number

$\frac{\sqrt{18}}{19}$ $\sqrt{3}$

Is it an integer?

Yes

A whole number is greater than or equal to 0 and has no fraction or decimal part.

No

Real number
Rational number

$\frac{1}{3}$ $\frac{\sqrt{4}}{\sqrt{16}}$

Is it a whole number?

Yes

No

Real number
Rational number
Integer

-7 $\frac{-\sqrt{100}}{\sqrt{25}}$

Real number
Rational number
Integer
Whole number

2 $\frac{36}{6}$

Classify each number. Use the flowchart to help you.

1. $\sqrt{15}$ _____

2. $\frac{3}{0}$ _____

3. $\sqrt{\frac{1}{9}}$ _____

4. -13 _____

_____   _____   _____   _____

LESSON 1-3

Ordering Real Numbers

Practice and Problem Solving: A/B

Compare. Write <, >, or = .

1. $\sqrt{5} + 3 \bigcirc \sqrt{5} + 4$

2. $\sqrt{6} + 13 \bigcirc \sqrt{10} + 13$

3. $\sqrt{7} + 4 \bigcirc 5 + \sqrt{6}$

4. $8 + \sqrt{2} \bigcirc \sqrt{8} + 2$

5. $3 + \sqrt{3} \bigcirc \sqrt{13} - 7$

6. $11 - \sqrt{3} \bigcirc 5 - \sqrt{3}$

Use the table to answer the questions.

7. List the butterflies in order from greatest to least wingspan.

   _____

   _____

   _____

   _____

Butterfly	Wingspan (in.)
Great white	3.75
Large orange sulphur	$3\frac{3}{8}$
Apricot sulphur	2.625
White-angled sulphur	3.5

8. The pink-spotted swallowtail's wingspan can measure $3\frac{5}{16}$ inches.

   Between which two butterflies should the pink-spotted swallowtail be in your list from question 7?

   _____

Order each group of numbers from least to greatest.

9. $\sqrt{8}$, 2, $\dfrac{\sqrt{7}}{2}$

10. $\sqrt{12}$, π, 3.5

   _____

   _____

11. $\sqrt{26}$, −20, 13.5, $\sqrt{35}$

12. $\sqrt{6}$, −5.25, $\dfrac{3}{2}$, 5

   _____

   _____

Solve.

13. Four people have used different methods to find the height of a wall. Their results are shown in the table. Order their measurements from greatest to least. $\pi \approx 3.14$

Wall Height (m)			
Allie	**Byron**	**Justin**	**Rosa**
$\sqrt{12} - 1$	$\dfrac{5}{2}$	2.25	$1 + \dfrac{\pi}{2}$

_____

Ordering Real Numbers
Practice and Problem Solving: C

1. Order $4.\overline{6}$, $\sqrt{13} + 1$, and $2\pi - 1.68$ from least to greatest. Use $\pi \approx 3.14$.

   a. From least to greatest, the numbers are:

   _____

   b. Would the order change if you used $\pi \approx \dfrac{22}{7}$? Explain.

   _____

2. Four people are using different methods to measure the width of shelves to be installed in a closet using 3.5-centimeter brackets. Their results are shown in the table.

Shelf Width (m)			
Allie	**Byron**	**Justin**	**Rosa**
$\sqrt{12} - 2.2$	$\dfrac{\sqrt{23}}{2} - 1$	1.18	$1 + \dfrac{\pi}{9}$

   a. Order their measurements from greatest to least.

   _____

   b. The width of the closet, 1.2 meters, is shown on the number line. Graph the four measurements shown in the table.

   _____
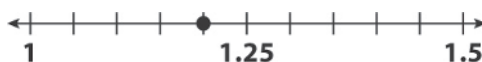
   c. Whose shelf or shelves would be suitable to use in the closet? Explain.

   _____

   _____

   _____

LESSON
1-3

Ordering Real Numbers

Practice and Problem Solving: D

Compare. Write <, >, or = . The first one is done for you.

1. $\sqrt{2} + 1$ $\boxed{<}$ $\sqrt{2} + 8$

2. $\sqrt{2} + 5$ $\bigcirc$ $\sqrt{2} + 3$

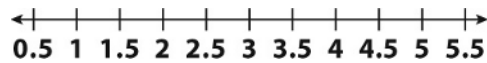3. $\sqrt{3} + 5$ $\bigcirc$ $5 + \sqrt{6}$

4. $8 + \sqrt{2}$ $\bigcirc$ $\sqrt{8} + 2$

5. $3 + \sqrt{3}$ $\bigcirc$ $\sqrt{7} - 3$

6. $5 - \sqrt{3}$ $\bigcirc$ $-\sqrt{3} + 5$

Graph the numbers on the number line. Then order them from least to greatest.

7. $\sqrt{2}$, π, 4.5

$$\xleftarrow{\;\;\;|\;\;\;|\;\;\;|\;\;\;|\;\;\;|\;\;\;|\;\;\;|\;\;\;|\;\;\;|\;\;\;|\;\;\;|\;\;\;}\rightarrow$$
0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5

From least to greatest, the numbers are _____, _____, and _____.

Order the numbers from least to greatest. The first one is done for you.

8. 2, $\dfrac{\sqrt{2}}{2}$, -10

9. 7, π, $\sqrt{3}$

$$-\mathbf{10}, \dfrac{\sqrt{2}}{2}, \mathbf{2}$$
_____

_____

10. $\sqrt{8}$, -4, 1.5

11. $\sqrt{6}$, -5.5, $\dfrac{3}{2}$

_____   _____

Solve.

12. Four people have measured the height of a wall using different methods. Their results are shown in the table. Order their measurements from least to greatest.

Wall Height (m)			
Allie	**Byron**	**Justin**	**Rosa**
$\sqrt{8}$	$\dfrac{5}{2}$	2.6	$1 + \sqrt{3}$

_____

LESSON
1-3

Ordering Real Numbers

Reteach

Compare and order real numbers from least to greatest.

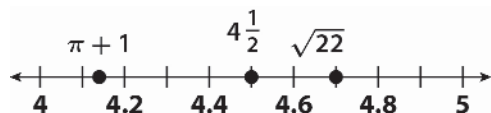Order $\sqrt{22}$, $\pi + 1$, and $4\frac{1}{2}$ from least to greatest.

You can use a calculator to approximate irrational numbers.

$\sqrt{22} \approx 4.69$

You know that $\pi \approx 3.14$, so you can find the approximate value of $\pi + 1$.

$\pi + 1 \approx 3.14 + 1 \approx 4.14$

Plot $\sqrt{22}$, $\pi + 1$, and $4\frac{1}{2}$ on a number line.

On a number line, the values of numbers increase as you move from left to right. So, to order these numbers from least to greatest, list them from left to right.

$\pi + 1$, $4\frac{1}{2}$, and $\sqrt{22}$

Order each group of numbers from least to greatest.

1. 4, π, $\sqrt{8}$

2. 5, $\dfrac{17}{3}$, $\pi + 2$

_____

3. $\sqrt{2}$, 1.7, -2

4. 2.5, $\sqrt{5}$, $\dfrac{3}{2}$

_____

5. 3.7, $\sqrt{13}$, $\pi + 1$

6. $\dfrac{5}{4}$, $\pi - 2$, $\dfrac{\sqrt{5}}{2}$

_____

LESSON 1-3

Ordering Real Numbers

Reading Strategies: Connect Words with Symbols

To compare real numbers, you can use the symbols $<$, $>$, and $=$.

To approximate irrational numbers, you can use the symbol $\approx$.

The symbol $<$ means "less than."

$$\frac{1}{2} < 2 \qquad \longleftarrow \qquad \text{Read as "}\frac{1}{2}\text{ is less than 2."}$$

The symbol $>$ means "greater than":

$$\sqrt{6} > \sqrt{5} \qquad \longleftarrow \qquad \text{Read as "The square root of 6 is greater than the square root of 5."}$$

The symbol $=$ means "equal to":

$$\sqrt{16} = 4 \qquad \longleftarrow \qquad \text{Read as}$$
"The square root of 16 is equal to 4" OR
"The square root of 16 equals 4."

The sign $\approx$ means "approximately equal to":

$$\pi \approx 3.14 \qquad \longleftarrow \qquad \text{Read as}$$
"π is approximately equal to 3.14." OR
"π is approximately 3.14."

Write in words.

1. $\sqrt{13} < 4$

   _____

2. $0.501 \approx \frac{1}{2}$
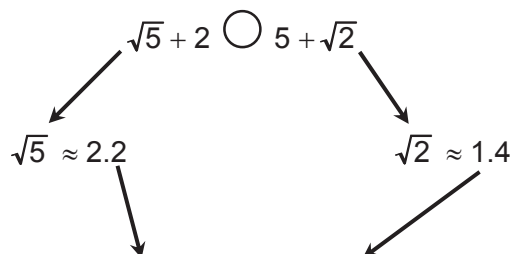
   _____

3. $\sqrt{25} = 5$

   _____

4. $\pi + 1 > \frac{2}{3}$

   _____

Write using symbols.

5. Eighteen-halves is equal to nine. _____

6. 5.17 is greater than the square root of twenty-three.

   _____

7. Two-thirds is less than pi. _____

LESSON 1-3

Ordering Real Numbers

Success for English Learners
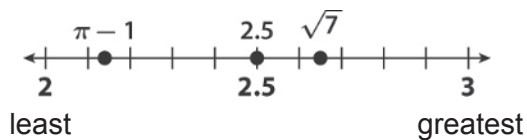
Problem 1

Compare. Write $<$, $>$, or $=$.

$$\sqrt{5} + 2 \;\bigcirc\; 5 + \sqrt{2}$$

> Find approximate values for $\sqrt{5}$ and $\sqrt{2}$. Use a calculator.

$$\sqrt{5} \approx 2.2 \qquad\qquad \sqrt{2} \approx 1.4$$

Substitute. $\quad 2.2 + 2 \;\bigcirc\; 5 + 1.4$

Add. $\qquad\qquad 4.2 \;\bigcirc\; 6.4$

$$4.2 \;\boxed{<}\; 6.4, \text{ so } \sqrt{5} + 2 \;\boxed{<}\; 5 + \sqrt{2}.$$

Problem 2

Order $\sqrt{7}$, $\pi - 1$, and 2.5 from least to greatest.

Find approximate values for $\sqrt{7}$ and $\pi - 1$.

$$\sqrt{7} \approx 2.65 \qquad\qquad \pi - 1 \approx 3.14 - 1$$
$$\approx 2.14$$

Plot the three values on a number line.

From least to greatest, the numbers are $\pi - 1$, 2.5, and $\sqrt{7}$

1. Compare. Write $<$, $>$, or $=$.

$$\sqrt{13} + 8 \;\bigcirc\; \sqrt{8} + 13$$

2. Order $\sqrt{19}$, $\pi + 1$, and 4.4 from least to greatest. _____

3. Name a situation in which it would be very important to know the order of a series of numbers.

_____

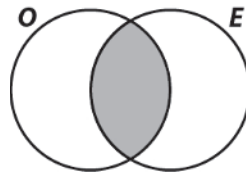# MODULE 1   Real Numbers
Challenge

Venn Diagrams

Diagrams using circles can show relationships between classes or sets. These diagrams are named after the English mathematician John Venn who introduced them.

Here are some examples using integers, even numbers, odd numbers, and primes. Remember that just one prime number, 2, is even. A shaded region is empty. A region marked *x* has at least one member.
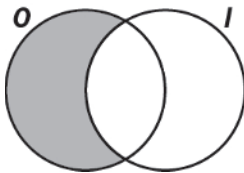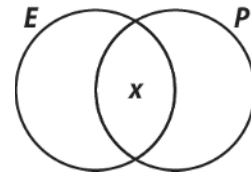

All odd numbers are integers.   No odd numbers are even.   Some even numbers are prime.
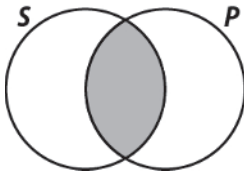
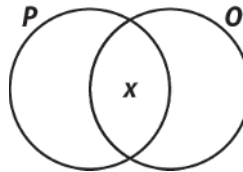All *O* is *I*.   No *O* is *E*.   Some *E* is *P*.

Describe each diagram using both words and letters. Set *S* is the square numbers.

1.

2.

3.

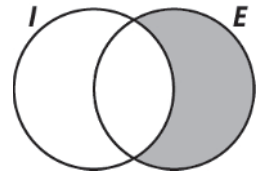_____

_____

_____

_____

_____

_____

Draw a Venn diagram for each statement.

4. Some square numbers are odd.

5. No prime numbers are squares.

_____

_____

6. All square numbers are integers.

7. Some odd numbers are not prime.

_____

_____

LESSON 2-1	**Integer Exponents**

Practice and Problem Solving: A/B

Find the value of each power.

1. $5^3 =$ _____

2. $7^{-2} =$ _____

3. $51^1 =$ _____

4. $3^{-4} =$ _____

5. $1^{12} =$ _____

6. $64^0 =$ _____

7. $4^{-3} =$ _____

8. $4^3 =$ _____

9. $10^5 =$ _____

Find the missing exponent.

10. $n^3 = n^{\boxed{}} \bullet n^{-3}$

11. $\dfrac{a^{\boxed{}}}{a^2} = a^4$

12. $(r^4)^{\boxed{}} = r^{12}$

Simplify each expression.

13. $(9-3)^2 - (5 \bullet 4)^0 =$ _____

14. $(2+3)^5 \div (5^2)^2 =$ _____

15. $4^2 \div (6-2)^4 =$ _____

16. $[(1+7)^2]^2 \bullet (12^2)^0 =$ _____

Use the description below to complete Exercises 17–20.

A shipping company makes a display to show how many cubes can fit into a large box. Each cube has sides of 2 inches. The large box has sides of 10 inches.

17. Use exponents to express the volume of each cube and the large box.

Volume of cube = _____   Volume of large box = _____

18. Find how many cubes will fit in the box. _____

19. Suppose the shipping company were packing balls with a diameter of 2 inches instead of cubes. Would the large box hold more balls or fewer balls than boxes? Explain your answer.

_____

_____

_____

20. Suppose the size of each cube is doubled and the size of the large box is doubled. How many of these new cubes will fit in that new large box? Explain how you found your answer.

_____

Name _____ Date _____ Class_____

Integer Exponents
Practice and Problem Solving: C

Simplify each expression.

1. $(7-3)^2 \bullet (6-2)^3 =$ _____

2. $(7-3)^2 \div (6-2)^3 =$ _____

3. $(2 \bullet 5^3) \div (9-4)^4 =$ _____

4. $[(3+7)^2]^2 \bullet (10^2)^0 =$ _____

5. $(3 \bullet 4)^2 \div (6 \bullet 2)^4 =$ _____

6. $[(2^2)^2]^2 \bullet 2^3 =$ _____

Answer each question.

7. Andrea quickly gave the answer to the problem below. Can you do the same? Explain how you found your answer.

Find the value of $a^n \bullet a^{n-1} \bullet a^{n-2} \bullet a^{n-3} \bullet a^{n-4} \bullet a^{n-5} \bullet a^{n-6}$ when $a = 2$ and $n = 3$.

_____

_____

For each experiment, make a prediction first. Then complete the given table. Finally, try the experiment and see if your prediction is correct.

Experiment 1: Fold a piece of paper in half over and over again to make smaller and smaller rectangles.

8. Predict the maximum number of small rectangles you can make before

you cannot fold the paper any further. _____

9.

Number of Folds	0	1	2	3	4	5	6	7	8	9	10
Number of Rectangles	2^0, 1	2^1, 2									

10. Do the experiment. How many rectangles could you make? _____

Experiment 2: Cut a piece of paper in half. Make a single pile of the pieces. Cut the pile in half. Continue making a single pile of the pieces and cutting the pile in half.

11. Predict the maximum number of pieces you can make before you cannot cut the paper any further. _____

12. Do the experiment. How many pieces could you make? _____

Animal Adaptations

An animal adaptation is something special about an animal that helps the animal survive. It helps the animal do everything it needs to do. Animal adaptations can be physical, which describes the animal's body. The adaptations can also be behavioral, which is how an animal does things in its daily life. Camouflage is one type of adaptation. It helps an animal blend in to its environment. Snowy Owls use this type of adaptation to blend into the snow around them. Another adaptation is hibernation. That is when an animal sleeps or rests through most of the winter months. Some bats hibernate throughout the winter. Migration is another type of adaptation. When animals migrate, they move from one place to another in order to survive. The Monarch butterfly migrates to Mexico each year.

Animal Adaptations

Answer each question in a complete sentence. Underline or highlight where you located the answer in the text.

1. What is an adaptation? _____

_____

2. What animal uses camouflage? _____

_____

3. What is migration? _____

_____

4. What is hibernation? _____

_____

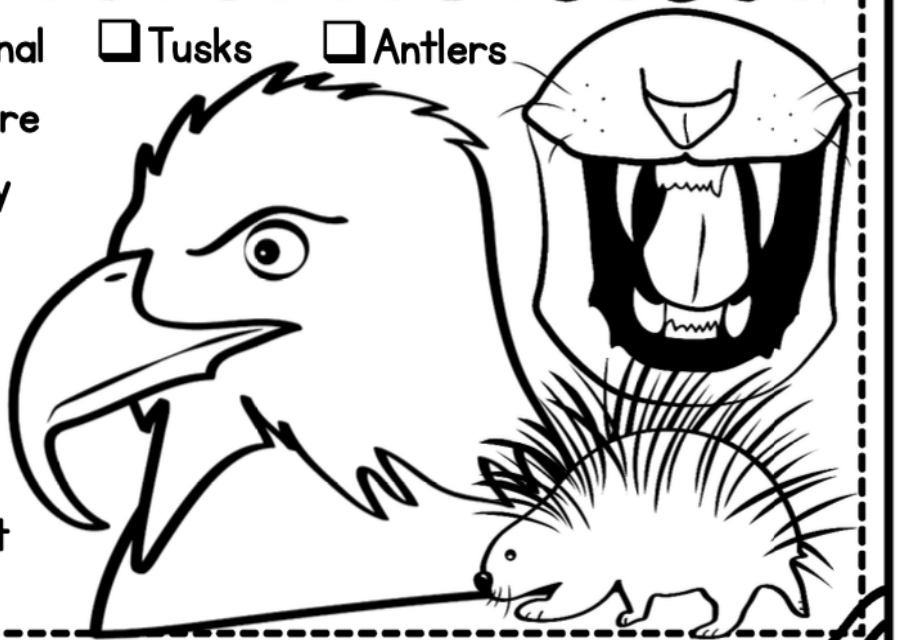5. In a paragraph share how migration and hibernation are similar and different.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Name _____ Date _____

ANIMAL ADAPTATIONS

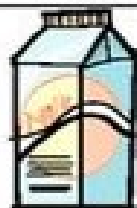|													
P	F	I	F	S	C	M	B	P	A	T	W	P	S	S	M
T	T	R	U	A	U	Y	L	I	A	T	E	M	Y	S	R
E	C	U	U	H	R	A	S	L	R	W	E	B	B	E	D
O	O	N	O	C	T	U	R	N	A	L	S	C	O	V	S
S	R	W	I	N	G	S	A	T	L	C	P	S	F	O	W
H	L	M	R	T	S	L	E	R	O	V	I	N	M	O	N
Y	I	L	C	C	S	R	A	S	R	E	K	S	I	H	W
M	E	N	A	S	P	N	E	O	R	Y	E	O	Y	A	S
S	I	L	M	R	U	F	I	O	T	E	S	L	C	H	I
N	E	A	O	A	O	S	V	F	O	S	H	I	S	A	P
S	A	O	U	S	R	I	O	U	I	A	W	T	R	O	O
K	F	R	F	E	N	K	V	C	A	S	L	A	A	L	S
S	L	A	L	R	L	N	A	A	I	K	E	R	L	E	S
U	E	T	A	N	R	E	B	I	H	A	S	Y	O	C	F
T	N	C	G	S	U	R	V	I	V	E	L	R	M	H	H
A	T	E	E	T	H	D	B	R	R	B	B	S	A	R	S

☐ Survive
☐ Physical
☐ Behavioral
☐ Whiskers
☐ Claws
☐ Teeth
☐ Wings
☐ Beaks
☐ Hooves
☐ Scales
☐ Fur
☐ Feathers
☐ Paws
☐ Smell
☐ Eyes

Molly Phillips www.ClassroomConfections.com

☐ Fins
☐ Hibernate
☐ Webbed
☐ Carnivore
☐ Camouflage
☐ Waterproof
☐ Tail
☐ Snout
☐ Mimicry

☐ Nocturnal
☐ Omnivore
☐ Solitary
☐ Social
☐ Howl
☐ Molars
☐ Ears
☐ Instinct
☐ Spikes

☐ Tusks
☐ Antlers

Physical and Chemical Changes

1. Soured milk smells badly because bacteria have formed new substances in the milk. This is an example of ___.
   a. physical change
   b. chemical change

2. Sand flowing in an hour glass is an example of _____.
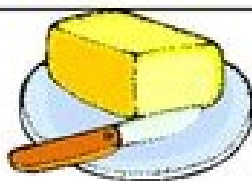   a. chemical change
   b. physical change

3. The change of state from a gas to a liquid is an example of _____.
   a. chemical change
   b. physical change

4. Which is an example of a physical change?

_____

5. The melting of butter when is let out in a warm room is an example of _____.
   a. chemical change
   b. physical change

6. Which of the following is an example of physical change?
   a. closing the door
   b. cracking an egg
   c. turning off the electric light
   d. putting the milk back in the fridge

7. An ice cream cone melting on a hot day is an example of _____.
   a. chemical change
   b. physical change

8. Which of the following describes a chemical change?
   a. water freezing
   b. match burning
   c. dew on grass
   d. magnetizing a nail
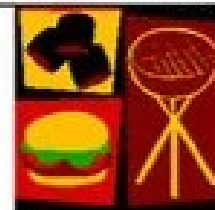
9. Charcoal burning on the grill is an example of _____.
   a. physical change
   b. chemical change

Quiz - Which type of heat transfer is taking place?

Write Conduction, Convection, or Radiation in the blank spaces to show the type of heat transfer.

1. _____   hot water rises and cold water sinks

2. _____   stir frying vegetables

3. _____   a spoon in a cup of hot soup becomes warmer

4. _____   grilling hamburgers over a charcoal flame

5. _____   hot air balloon rises

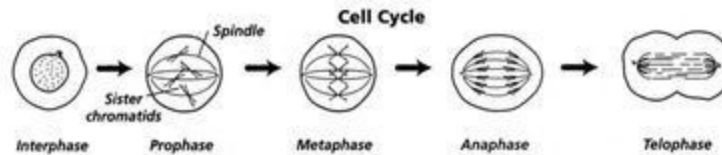6. _____   you feel the heat from a campfire

7. _____   a raw egg begins to fry as it hits a heated frying pan

Standard: B-2.6   Name: _____

Mitosis Worksheet & Diagram Identification

Cell Cycle

Interphase   Prophase   Metaphase   Anaphase   Telophase

1. Chromosomes move to the middle of the spindle during what phase? _____

2. What are sister chromatids? When do the separate? _____

   _____

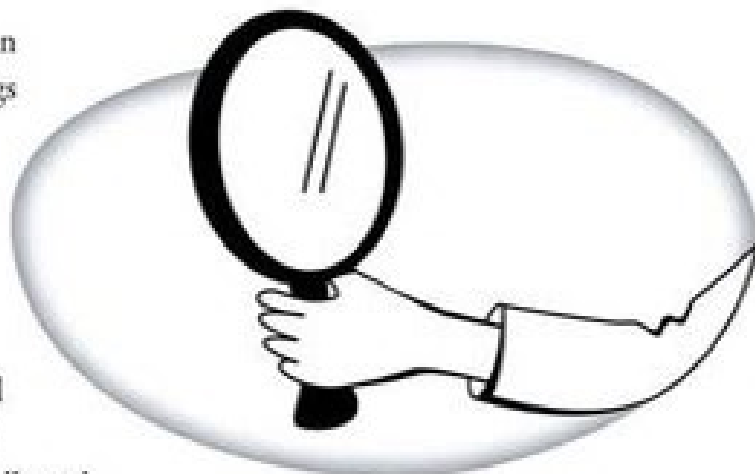3. During which phase do chromsomes first become visible? _____

4. In muclticellular organisms, the cell cycle produces groups of cells that perform the same
   function. What are these groups of cells called? _____

Complete the table by checking the correct column for each statement.

Statement	Interphase	Mitosis
5. Cell growth occurs		
6. Nuclear division occurs		
7. Chromosomes are distributed equally to daughter cells.		
8. Protein production is high		
9. Chromosomes are duplicated		
10. DNA synthesis occurs		
11. Cytoplasm divides immediately after this period		
12. Mitochondria and other organelles are made.		

1

Can It Reflect Light?

What types of objects or materials can reflect light? Put an X next to the things you think can reflect light.

___ water

___ gray rock

___ leaf

___ mirror   ___ dull metal

___ glass   ___ red apple

___ sand   ___ rough cardboard

___ potato skin   ___ the Moon   ___ milk

___ wax paper   ___ rusty nail   ___ bedsheet

___ tomato soup   ___ clouds   ___ brand new penny

___ crumpled paper ___ soil   ___ old tarnished penny

___ shiny metal   ___ wood   ___ smooth sheet of aluminum foil

Explain your thinking. Describe the "rule" or the reasoning you used to decide if something can reflect light.

_____

_____

_____

_____

_____

_____

_____

_____

Abraham Lincoln

Abraham Lincoln was the 16th president of the United States. He was born in Kentucky, to a family of little means. Further financial setbacks drove them to Indiana, where then family continued to struggle financially. Though the young Abraham didn't attend much school, he was very intelligent and whatever books he was able to borrow. When he grew up, Lincoln had many different jobs. He worked as a shopkeeper, a surveyor, a postmaster, and a woodchopper. When he was 25 years old, he was elected to the Illinois State Legislature.

At the same time as Lincoln began his career in politics, he studied law and became a lawyer. In 1845 he ran for the U.S. Congress and won, serving one term. He later ran for the Senate, and although he lost the election, he was beginning to make a name for himself for speaking out against slavery. In 1860, Lincoln ran for president representing the newly formed Republican party. The Republicans were opposed both to slavery and to allowing the southern U.S. states to secede. In order to preserve the Union, the Republican Party was willing to allow slavery to continue in the southern states provided it did not spread to new states or territories.

When Lincoln was elected president in 1860, it the last in a chain of events that prompted the southern states (who did not like Lincoln) to secede. Before Lincoln was sworn in, seven states declared their independence from the U.S. and formed a new country they called the Confederacy.

The Civil War began the following year. Its goal was to defeat the Confederacy so that the United States would remain a single country. The war lasted four years and killed 600,000 Americans. While it was still ongoing, on January 1, 1863, Lincoln issued an executive order called the Emancipation Proclamation, declaring that all the slaves in the Confederate states were free. This was a landmark moment, although it would be several more years and require a Constitutional amendment before all slaves in the U.S. were freed.

QUESTIONS: Abraham Lincoln

Circle the correct answer.

1. Which of the following sentences does NOT describe Abraham Lincoln?
    A. He was born in Kentucky.
    B. He came from a wealthy family.
    C. He did not attend much school.
    D. He was very intelligent.

2. Which of the following professions did Lincoln pursue over the long term?
    A. shopkeeper
    B. surveyor
    C. postmaster
    D. lawyer

3. What was the Republican Party willing to do in order to preserve the Union?
    A. outlaw slavery in the southern states
    B. outlaw slavery in all newly added states
    C. allow slavery in all newly added states
    D. allow slavery to continue in the southern states

4. Which was the last in a chain of events that prompted the southern states to secede?
    A. Lincoln was elected president
    B. the south feared they would lose power as more states were added
    C. the south feared the north would outlaw slavery
    D. disagreement over how much power states should have

5. What was the goal of the Civil War?
    A. to increase state's rights
    B. to preserve the union
    C. to end slavery
    D. all of the above

The Assassination of Lincoln

Abraham Lincoln was the sixteenth President of the United States. He served one four-year term and a few weeks of a second term before he was assassinated on April 14th, 1865, while seated in the Presidential Box to see a play called Our American Cousin at the Ford Theatre in Washington D.C. with his wife and several guests. Lincoln was the first U.S. president to be assassinated.

John Wilkes Booth had been sympathetic to the Confederacy. With General Lee having surrendered to the Union at Appomattox, Virginia just days before, Booth believed that the South was going to lose the war. In hopes that some bold move would make a difference Booth got together with a few like-minded men and they planned to kidnap Lincoln. The kidnapping failed, so they began to make plans to kill him instead. Booth was supposed to kill Lincoln, while one of the conspirators, Lewis Powell, was supposed to kill the Secretary of State William H. Seward and another, George Atzerodt, was supposed to kill Vice President Andrew Johnson.

During the play, John Wilkes Booth went into the Presidential Box and shot Lincoln in the back of the head. One of the guests, a Major Rathbone, was stabbed when trying to stop Booth. Booth then jumped down from the box, left the theatre, and escaped on horseback. Lincoln was taken across the street to the William Peterson boarding house, but though he was attended by several doctors, he died the following day.

Though Booth did his part, the others didn't. Powell was unsuccessful in trying to kill Seward, and Atzerodt changed his mind and did not even try to assassinate Andrew Johnson. Booth was captured in Southern Maryland and shot when he refused to surrender. The rest of the men involved in the plot were arrested and tried, and several were hanged.

QUESTIONS: The Assassination of Lincoln

1. How many terms did President Lincoln serve?

2. Where was Lincoln assassinated?

3. What side did John Wilkes Booth support during the Civil War?

4. What was the original plan of Booth and his conspirators with regards to Lincoln?

5. Who killed Lincoln?

6. How did the conspiracy to assassinate Lincoln, Seward, and Johnson turn out?

Mary Todd Lincoln

Mary Todd Lincoln was the wife of Abraham Lincoln, who was the sixteenth president of the United States. Mary was born into a large family in Kentucky. Her father was a state senator, and she became interested in politics at a young age. Mary Todd met Abraham Lincoln when she was staying with her sister in Springfield, Illinois. Three years later, they married. They had four sons, two of which died young of illness.

Over the next several years, Lincoln began a career and politics while he studied law. He was elected to the Illinois state legislature. Then, in 1846, he was elected to the U.S. Congress and served one term. He developed a reputation for his stance against slavery. When Lincoln's term in Congress ended, he and Mary left Washington D.C. and went home to Springfield. While Lincoln practiced law, Mary took care of the house. When Lincoln ran for president in 1860, Mary worked on his campaign. She was also known for voicing her strong opinions about the issues of the day to reporters. When Lincoln became president in 1861, Mary Todd Lincoln became the first lady. They moved into the White House, which at that time was both dirty and in a state of disrepair. Mary dedicated herself to fixing it up.

Shortly after Lincoln was elected but before he was inaugurated, the southern states, who were already disgruntled for various reasons and who did not like Lincoln, seceded from the Union and started their own country, which they called the Confederacy. Lincoln was determined to keep the Union together. Soon, the North and the South were at war. During this time, Mary stayed with her husband. She went with him when he visited the troops and acted as both his political advisor and as a volunteer nurse. During this time, three of Mary's brothers died as soldiers serving in the Confederate Army.

When Lincoln was assassinated in 1865, Mary was devastated with grief. She died eighteen years later and was buried with Lincoln.

Name _____ **Abraham Lincoln**

QUESTIONS: Mary Todd Lincoln

1. Who was Mary Todd Lincoln?

2. How many children did the Lincolns have?

3. How many terms did Lincoln serve in Congress?

4. What kind of reputation did Lincoln have in politics?

5. What was Mary Lincoln known for when Abe Lincoln was running for president?

6. What did Mary Lincoln dedicate herself to after Lincoln was elected president?

7. What happened shortly after Lincoln was elected but before he was inaugurated?

8. What did the southern states call their newly formed country?

9. What role did Mary Lincoln play during the Civil War?