

Cohen Middle School
100 Robinwood Avenue
Elmira Heights, NY 14903
734-5078

Name: _____ Date: February 4, 2020 _____

Math:

Ratio, Rates, Proportion Review
packet Classwork Tues/Wed.

homework wksh + due wed.

Social Studies:

- Chapter 6 Section I Geography of China

HW: Corrections due Monday 2/10

ELA:

Daily Warm Up
Plural Words
Capitalization Rules
Independent Practice

Science

"SEASONS" READING

- ① READ
- ② complete organizer (graphing wed.)
- ③ STUDY VOCAB + PICTURES

Computer Apps/ Technology

Get safety contract signed +
returned for a grade.

Name: _____

Date: _____

CONVENTIONS → **SPELLING AND CAPITALIZATION**

It is important to follow spelling and capitalization rules when writing.

For many nouns, add *-s* or *-es* at the end of a word to change it from singular to plural. The nouns *tree*, *glass*, and *tomato* are singular. The plural forms of these nouns are *trees*, *glasses*, and *tomatoes*.

For **irregular plurals**, you must follow certain spelling rules:

- **For words that change form, remember these irregular forms:** *child, children; cactus, cacti; louse, lice*
- **For words that end with a consonant and -y, change the -y to -i and add -es:** *fly, flies; baby, babies; copy, copies*
- **For words that end in -f or -fe change the -f or -fe to -v and add -es:** *wolf, wolves; knife, knives*

You must also follow certain **capitalization rules**. Here are some rules:

- Capitalize proper nouns and adjectives: *Miami; German shepherd*
- Capitalize days of the week and months of the year: *Tuesday, January*
- Capitalize proper names as well as a person's title: *Professor Smith, Jake, Mrs. Chang*
- Capitalize the first word in a sentence: *The lawyer won her first case.*

A. DIRECTIONS: Choose the letter of the rule that helps explain how to spell each irregular plural.

1. calves

_____ a. For words that end in *-f* or *-fe*, change the *-f* or *-fe* to *-v* and add *-es*.

_____ b. For words that end with a consonant and *-y*, change the *-y* to *-i* and add *-es*.

2. fairies

_____ a. For words that end in *-f* or *-fe*, change the *-f* or *-fe* to *-v* and add *-es*.

_____ b. For words that end with a consonant and *-y*, change the *-y* to *-i* and add *-es*.

B. DIRECTIONS: Underline the words that should be capitalized in each of the following.

1. my sister is interested in a radio career.
2. adnan assured us we were eating real lebanese cooking.
3. "let's go to the beach," kate said.
4. ms. jones teaches at jefferson high school.

Name: _____

Date: _____

CONVENTIONS → SPELLING AND CAPITALIZATION**A. DIRECTIONS:** Write the correct plural form of each of the following words.

- | | |
|-----------------|-------------------|
| 1. cliff _____ | 6. chief _____ |
| 2. melody _____ | 7. wife _____ |
| 3. glory _____ | 8. video _____ |
| 4. half _____ | 9. mattress _____ |
| 5. tower _____ | 10. scarf _____ |

B. DIRECTIONS: Underline the words that should be capitalized in each of the following sentences.

- my dog knows several tricks.
- on her return from africa, rita had a number of stories to tell.
- officer patricia cabot was awarded a medal for bravery.
- my friend chris has traveled all over the united states.
- the envelope was addressed to mrs. cathy jordan.

C. DIRECTIONS: Rewrite the following sentences, inserting capitals where necessary.

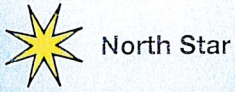
- the atmosphere was tense as we waited for inspector griffin. we didn't have long to wait.

- "the case is over," he said. "we have found the thief."

- the inspector cleared his throat to read the letter. everyone listened eagerly.

- "dear sir," he read. "max stole the jewels; he buried them in the yard."

- "impossible!" Kay cried. "my dog is a good dog and is not a thief."



Seasons

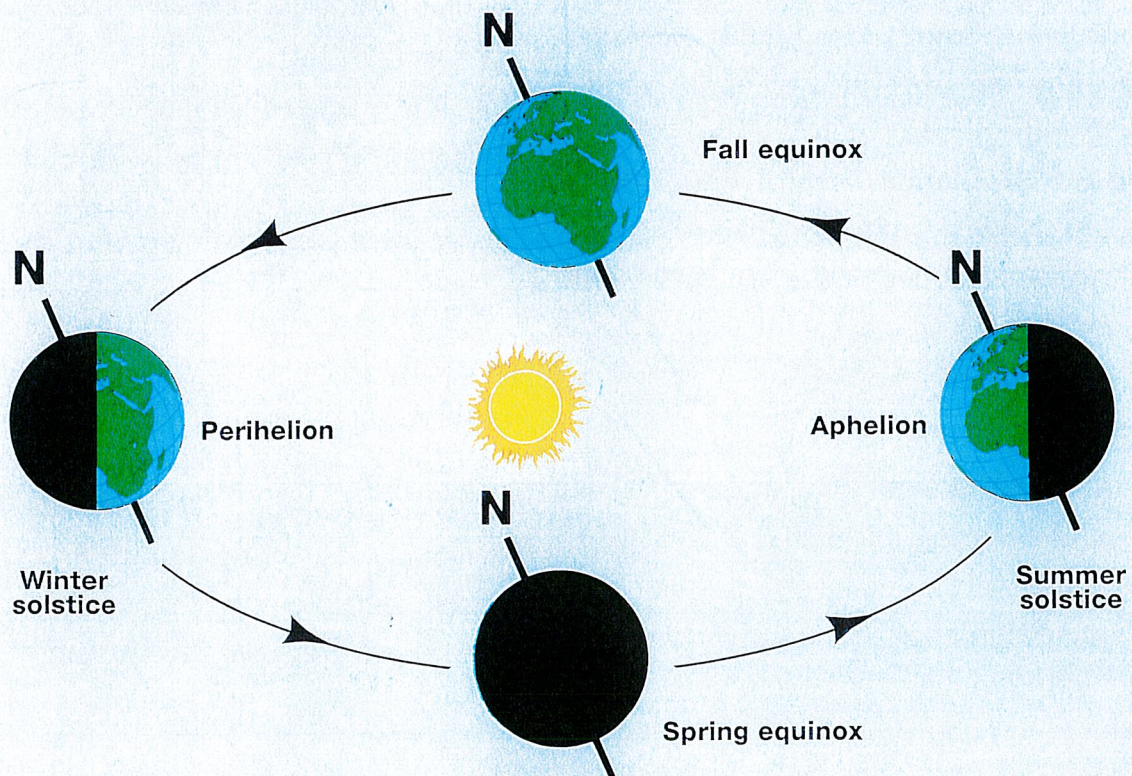
What do you picture in your mind when you read these words? Summer. Fall. Winter. Spring.

Most of us come up with a mental picture or two—summer means shorts and T-shirts, swimming, and fresh fruits and vegetables. Winter means heavy coats and short days with, perhaps, a blanket of snow on everything. Seasons are pretty easy to tell apart in most parts of the country. The amount of daylight, the average temperature, and the behavior of plants and animals are a few familiar indicators of the season. But what causes the predictable change of season? Have you ever stopped to think about why the seasons happen?

As Earth Tilts

Let's start with a quick review of some basic information about our planet.

- Earth spins on an imaginary axle called an **axis**. The axis passes through the North and South Poles. This spinning is called **rotation**. It takes 24 hours for Earth to make one rotation on its axis.
- Earth travels around the Sun. Traveling around something is called **revolution**. Earth's path around the Sun is not exactly round, but is slightly oval. One revolution takes 365 and 1/4 days, which is 1 year.



- Earth doesn't sit straight up and down on its axis as it revolves around the Sun. It is tipped at a 23.5° angle.
- The average distance between the Sun and Earth is about 150 million kilometers. Because Earth's orbit is an ellipse (oval), Earth is sometimes farther away from and sometimes closer to the Sun. **Perihelion** is when Earth and the Sun are closest to each other. Perihelion happens each year around January 3. The distance is 147 million kilometers. **Aphelion** is when Earth and the Sun are farthest apart. It happens each year around July 4. The distance is 152 million kilometers.

It would seem logical that summer would be during perihelion, when Earth is closest to the Sun. Wrong. Here in the Northern Hemisphere, we are in the middle of winter at the time of perihelion. Because Earth is closest to the Sun in January, it receives more energy in January than at any other time of year. But that energy doesn't make it warm in the United States. The reason for seasons is linked to Earth's tilt.

Think about Earth revolving around the Sun. As Earth revolves, it also rotates on its axis, one rotation every 24 hours. Here's something important: Earth's North Pole *always* points at a reference star called the North Star. No matter where Earth is in its orbit around the Sun, the North Pole always points at the North Star, day and night.

Tilt Equals Season

Look at the illustration on page 17. It shows where Earth is in its orbit around the Sun at each season. You will also see that the North Pole points toward the North Star in all four seasons.

Study the Earth image in the summer solstice position. Because of the tilt, Earth is "leaning" toward the Sun. When the North Pole is leaning toward the Sun, it is summer in the Northern Hemisphere. Days are longer, and the angle at which light hits that part of Earth is more direct. Both of these factors result in more solar energy falling on the Northern Hemisphere in summer (thus more heat) even though the planet is actually farther away from the Sun.

Look at the position of Earth 6 months later (winter solstice). Just the opposite is true. Even though Earth is closer to the Sun at this time, the Northern Hemisphere is leaning *away from* the Sun. Days are shorter, and sunlight does not come as directly to the Northern Hemisphere, so it gets less solar energy.

Four days in the year have names based on Earth's location around the Sun. **Summer solstice** (June 21 or 22) is the day when the North Pole leans toward the Sun. **Winter solstice** happens on December 21 or 22 when the North Pole leans away from the Sun.

The 2 days when the Sun's rays shine straight down on the equator are the **equinoxes**. Earth's axis is tilted neither away from nor toward the Sun. *Equinox* means "equal night." Daylight and darkness are equal (or nearly equal) all over Earth. There are two equinoxes each year, **spring equinox** (March) and **fall equinox** (September).

Daily Dose of Sunshine

We take night and day for granted. They always happen. The Sun comes up; the Sun goes down. This cycle has happened as long

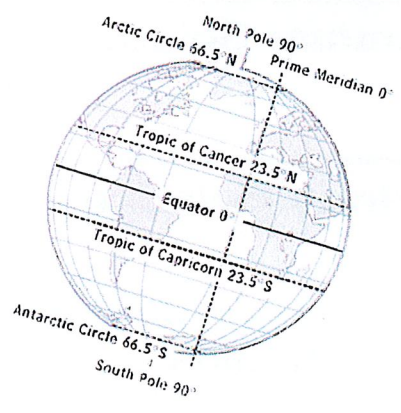
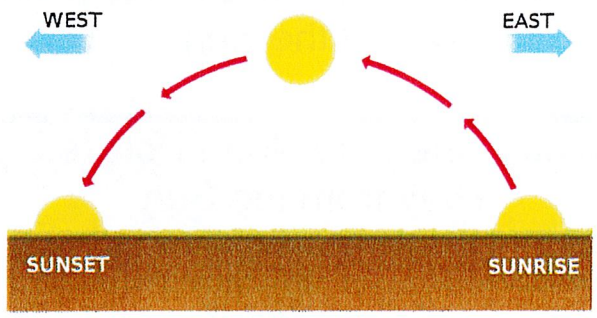
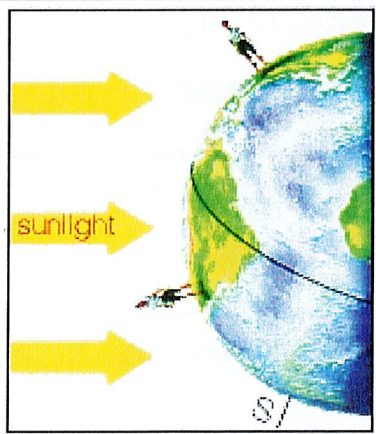
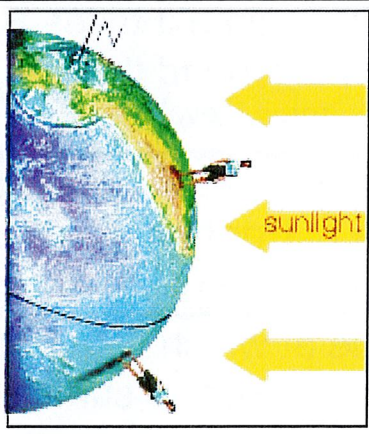
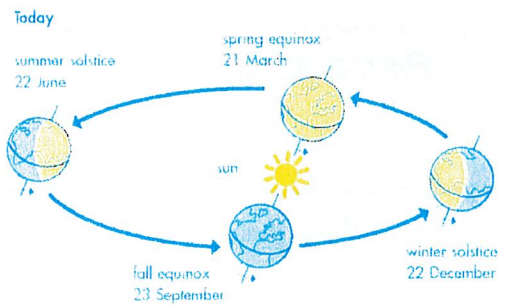
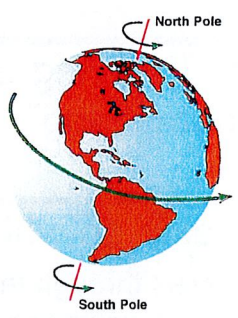
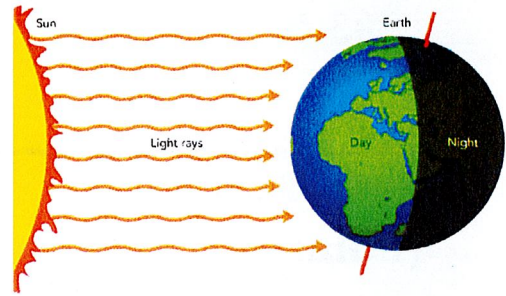
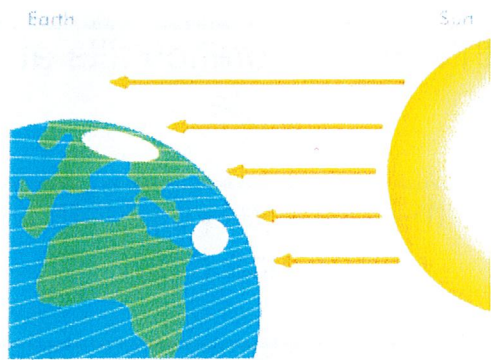
as humans have been on Earth. It will most likely continue for millions of years.

Because Earth tilts, the length of day and night changes as the year passes. This table shows how hours of daylight change by latitude during the year. When it's summer in the Northern Hemisphere, the North Pole leans toward the Sun. At the North Pole, the Sun never sets. Above the Arctic Circle (66.5° north), daylight can last all 24 hours of the day.

LENGTH OF DAYLIGHT IN THE NORTHERN HEMISPHERE			
Latitude (°N)	Summer solstice	Winter solstice	Equinoxes
0	12 hr.	12 hr.	12 hr.
10	12 hr. 35 min.	11 hr. 25 min.	12 hr.
20	13 hr. 12 min.	10 hr. 48 min.	12 hr.
30	13 hr. 56 min.	10 hr. 04 min.	12 hr.
40	14 hr. 52 min.	9 hr. 08 min.	12 hr.
50	16 hr. 18 min.	7 hr. 42 min.	12 hr.
60	18 hr. 27 min.	5 hr. 33 min.	12 hr.
70	24 hr. 00 min.	0 hr. 00 min.	12 hr.
80	24 hr. 00 min.	0 hr. 00 min.	12 hr.
90	24 hr. 00 min.	0 hr. 00 min.	12 hr.

Seasons Vocabulary & content

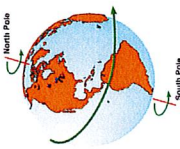
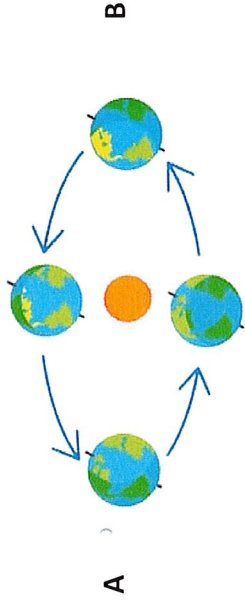
23.5°	Earth's axis of rotation tilts at an angle
North Star (Polaris)	The North Pole always points at this reference point
Rotation	The motion of the Earth's axis (spinning)
Revolution	An orbit; "traveling around something"
Axis	Imaginary axle on which earth rotates; it passes through the North and South pole and is perpendicular to the Equator
365 ¼ days 1 year	The length of time it takes Earth to travel around the sun (orbit / revolution)
24 hours 1 day	The length of time to create one full spin of Earth on its axis; (rotate/spin day/night)
Solar angle	The angle at which light from sun strikes Earth's surface
Summer Solstice	The day when the North Pole leans toward the Sun.
Winter Solstice	The day when the North Pole leans away from the Sun
Equinox	"Equal Night" The two days when the Sun's rays are directly on the Equator



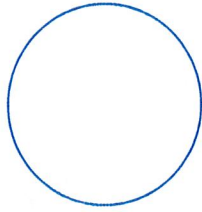
Today's Goal: Using the Weather and Water Resource Book, pages 17-19, read the "Seasons" Article. Then, read each statement in the left column of organizer below. On the right, infer and find facts. Support the claim that **"Earth's tilt and motions are the reasons for seasons"**

North Star

Seasons

Statement	Supporting details, evidence, or inference
<p>1. "Seasons are pretty easy to tell apart in most parts of the country." (page 17, ¶ #2)</p>	<p>List three familiar indicators (gages or identifying factors) of Seasons in our country.</p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>2. "Earth spins on an imaginary axle called an axis."</p> <p style="text-align: center;">  </p>	<ul style="list-style-type: none"> • The axis passes through _____ and _____ • The spinning is called _____ • It takes _____ (or _____) to _____
<p>3. "Earth travels around the Sun." (Pg. 17, ¶4)</p> <p style="text-align: center;">  </p>	<ul style="list-style-type: none"> • Traveling around something is called _____ • Earth's path around the Sun is not exactly _____ but is slightly _____ • One revolution takes: _____ or _____ • Look at the diagram. (infer) How long it takes for earth to travel from Point A to Point B? _____

4. **Earth's Tilt** "Earth doesn't sit straight up and down on its axis..."



- Earth is: _____
- On its _____
- As it _____
- Around the _____
- (In the space to the left, draw an Earth with an axis that is tilted, include the sun and North Pole)

5. **Distance between Earth and Sun**

"Because Earth's orbit is an ellipse (oval), Earth is sometimes farther away from and sometimes closer to the Sun" (Page 18, ¶ 2 – 3)

MYTH: "It would seem logical that summer would be during perihelion, when Earth is closest to the Sun. **WRONG!**"

- _____ (January 3rd) When Earth and Sun are **closest**; We are in the middle of _____, and the earth receives **MORE** energy. This **DOES NOT** make it warmer in the United States.
- _____ (July 4th): When Earth and Sun are **farthest apart**. We are in the middle of _____.

Summarize: THE REASON FOR THE SEASONS IS NOT LINKED TO THE _____ BETWEEN SUN AND Earth's _____; The reason for the seasons is linked to _____

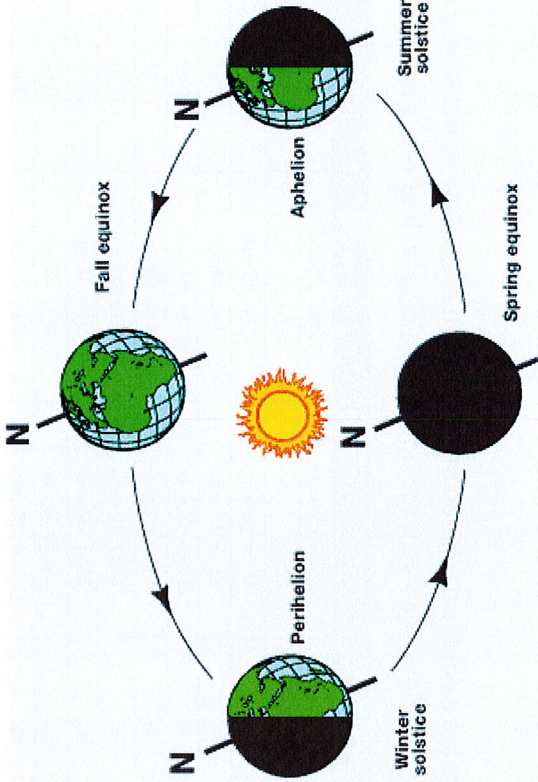
6. "Think about Earth revolving around the Sun" (page 18, ¶14)



Tilt + Motion = Earth's Seasons

- **Two Motions:** As Earth _____ (spins) it also _____ (orbits) around the Sun
- One Rotation = _____ hours / _____ day
- One Revolution = _____ days / _____ year
- The text says, "Here's something important". What is it? _____

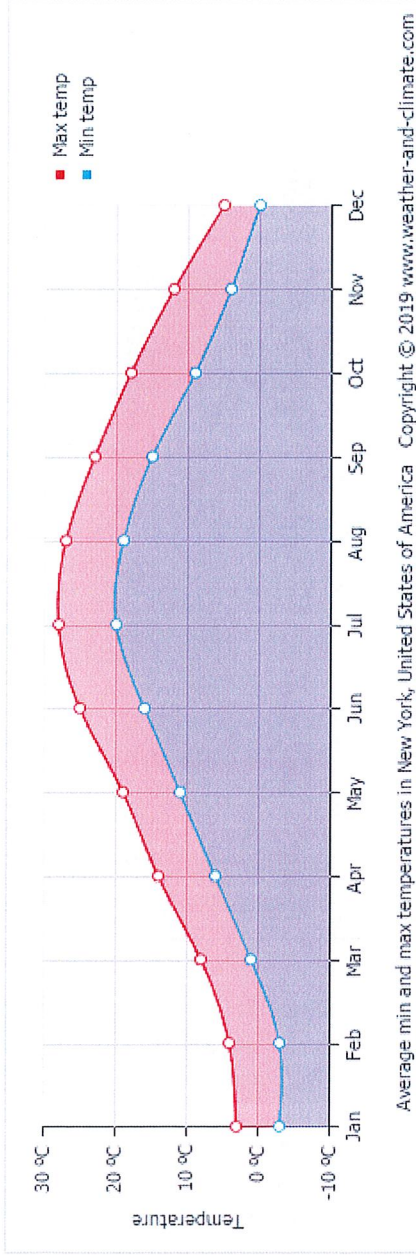
7. SEASONS ARE OPPOSITE (Page 18 – 19)



Directions: In this section read, then compare the Winter Solstice and the Summer Solstice. Use evidence from the text, in addition to what you have learned so far in the chart below (Earth's seasons in the N. Hemisphere)

Summer Solstice		Winter Solstice	
Dates			
Leaning of Earth is toward, away, or perpendicular	Toward the sun	Away from the sun	Perpendicular to the sun
Day length	Shorter days	longer days	equal day / night
Latitude of Direct Rays (Tropic of Cancer, Capricorn, Equator)	Tropic of Cancer	Equator	Tropic of Capricorn

What do you see?



Directions: Using separate graph paper, create a double bar graph of the "Length of Daylight in the Northern Hemisphere. Use RED for Summer solstice, and Blue for Winter Solstice. Use an appropriate Scale along the X-Axis for Hours of Daylength, and Y-Axis is the Latitude, °N

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60	18 hr. 27 min.	5 hr. 33 min.	12 hr.
70	24 hr. 00 min.	0 hr. 00 min.	12 hr.
80	24 hr. 00 min.	0 hr. 00 min.	12 hr.
90	24 hr. 00 min.	0 hr. 00 min.	12 hr.

Homework

Name _____

Period _____

1. If 40% of a number is 56, what was the original number?

Answer _____

2.a. Maria completed $\frac{3}{4}$ of her work day. What percent of the workday Maria has worked.

Answer _____

b. Explain the strategy you used to find your answer:

c. What percent of her work day does she have left?

Answer _____

3. A pair of jeans was 30% off the original price. The sale resulted in a \$24 discount.

- a. Is the original price of the jeans considered the whole, part or percent? _____
- b. What was the original cost of the jeans before the sale?

Answer _____

REVIEW

4. Jill and Jane both found pillows on sale during the Black Friday sale. Jill found a sale that was 4 pillows for \$10.00. Jane found a sale that was \$7.50 for 3 pillows. Which girl found the best deal?

Show work:

Answer _____

Tues/Wed
Classwork

Name _____

Ratios, Rates and Proportions

1) Write a ratio in simplest form that represents the number of **& (and)** symbols to the total number of figures? _____

& & & & % % % % @ @ @ @ @ @ @ @ @ @

2) Determine if each pair of ratios forms a proportion. Show your work.

$$\frac{30}{80} \text{ and } \frac{12}{32}$$

$$\frac{12}{15} \text{ and } \frac{2}{3}$$

$$\frac{6}{9} \text{ and } \frac{14}{21}$$

3) A local restaurant purchased 45 pounds of flour at a total cost of \$38.25. Determine the unit cost per pound.

Show Work:

Target Statement _____

Write each ratio as a fraction in simplest form.

4) 48 : 76

5) 20 inches to 4 feet

Find each unit rate. Round your answer to the nearest hundredth if necessary.

6) _____ 640 miles in 25 hours

7) _____ \$30.50 for 32 ounces of specialty cooking oil

Solve for the missing number in each proportion.

8) $\frac{24}{17} = \frac{m}{34}$

9) $\frac{14}{a} = \frac{4}{14}$

10) $\frac{5}{9} = \frac{3}{y}$

11) $\frac{5}{7} = \frac{13}{p}$

#'s 12- 15 Solve each of the following. Show your work.

- 12) Use a proportion to determine whether or not the two items below contain an equal proportion of fat.

Steak: A 20 ounce steak contains 6 ounces of fat.

Hamburger: A 6 ounce hamburger contains 0.75 ounces of fat.

Target Statement _____

- 13) A 12 ounce can of Coke costs \$0.50 when purchased from the soda machine at the school. An 18 ounce bottle of Pepsi from the soda machine at the local gas station costs \$1.25. Find the unit cost of each to determine which location has the less expensive soda per ounce?

Show Work:

Target Statement _____

14) The ratio of boys to girls at the dance was 9 to 5. How many boys were at the dance if there were 85 girls at the dance?

Show Work:

Target Statement _____

15) The ratio of teachers to students in a school is 2 to 45. How many teachers are in the school if there is a total of 1410 students and teachers altogether in the school?

Target Statement _____

16) Constructed Response

Seven notebooks at the school supply store cost \$4.76.

Step A

What is the unit rate? _____

Step B

Explain how you determined your answer to Step A. Use words, numbers, and/or symbols in your explanation.

- How much would it cost to purchase 3 of these notebooks?
Show Work:

Target Statement _____

17) Constructed Response

A machine can make 28 items in a 8 minute time period.

Step A

How many items could this machine make in a 14 minute time period?

Step B

- Use what you know about proportions to explain how you determined your answer to Step A. Use words, numbers, and or symbols in your explanation.

- How many items could this machine make in a three hour time period?

_____ Show Work:

Target Statement _____

Selected Response

18) _____ Which ratio is equivalent to 48:72?

A) 3:4

B) 2:3

C) 8:10

D) 7:9

19) _____ Which ratio is equivalent to $\frac{21}{56}$?

A) $\frac{4}{7}$

B) $\frac{12}{15}$

C) $\frac{12}{32}$

D) $\frac{4}{12}$

20) _____ Which ratio is equivalent to $\frac{7}{8}$?

A) $\frac{2}{7}$

B) $\frac{42}{48}$

C) $\frac{35}{56}$

D) $\frac{21}{32}$

21) _____ Which ratio is equivalent to $\frac{21}{35}$?

A) $\frac{3}{4}$

B) $\frac{36}{90}$

C) $\frac{9}{16}$

D) $\frac{3}{5}$

