Name:_____

Start date:_____

Hand in date:_____

Mark:_____

Math 8 K&E

Getting Started

Getting Started

- ☐ I can use my calculator.
- ☐ I can use BEDMAS to solve problems.
- ☐ I can use place value; words to numbers and numbers to words.
- ☐ I can explain the relationship between different units of time.
- ☐ I can estimate and understand temperatures in celsius and fahrenheit.
- ☐ I can estimate and measure time on a 12-hour and 24-hour clock.
- ☐ I can use multiples and factors of numbers.

At the end of this unit, you need to come back to this page and check off what you know.

Getting Started

Unit: Getting Started	I Can	Do
1. Using my Calculator	I can tell you what the buttons mean on my calculator.	
2. BEDMAS	I can tell and show you how to solve problems using BEDMAS.	Practice: BEDMAS pp. 7–9
3. Place Value	I can tell you how to write words to numbers and numbers to words.	Practice: pp. 10–12
4. Units of Time	I can explain the relationship between the units of time.	Practice: p. 15
5. Temperature	I can understand and estimate temperatures in celsius and fahrenheit.	Practice: p. 18 pp. 21–22
6. Time	I can estimate and measure time.	Practice: pp. 24–25 p. 27 p. 29

Unit: Getting Started	I Can	Do
7. Multiples Factors/ Prime Numbers	I can describe what multiples, factors and prime numbers are.	Practice: pp. 31–32
8. Assessment		Unit Test: pp. 33–36

How to Use Your Calculator

What do all of those buttons mean?????

Term	Symbol	What does it mean?
Square root	$\sqrt{}$	This key will help you find the square root. $\sqrt{81} = 9$
Percent	%	This key will help you find the percent.
Exponent	3^2	The little number ^{2} tells you how many times to multiply the base (3). $3 \times 3 = 9$
MC	Use this key to clear the memory and set it back to 0.	This key is sometimes labeled CM.
Fractions	$a\ \frac{b}{c}$ e.g., $a\ \frac{b}{c}$ $1\frac{1}{2}$	This button will help you to do fractions on your calculator. The a is a whole number and the b/c is the fraction.

NOTES:

BEDMAS

BEDMAS, or order of operations, is a simple way to remember which steps you should do first, second, third, when you are solving a math problem.

B–brackets
E–exponents
D–division
M–multiplication
A–addition
S–subtraction

Example: $6 \times 3 + 7 - 10 \div 2 =$ _____

❶ Ask yourself if there are **Brackets** ( ) ...**NO**

❷ Ask yourself if there are **Exponents** 2^2 ...**NO**

❸ Ask yourself if there is **Division** ÷ ...**YES**
Now, solve that part of the problem and rewrite your question with the answer.
$10 \div 2 = 5$
$6 \times 3 + 7 - 5$

❹ Ask yourself if there is **Multiplication** x ...**YES**
Now, solve that part of the problem and rewrite your question with the answer.

$6 \times 3 = 18$
$18 + 7 - 5$

❺ Ask yourself if there is **Addition** + ...YES
Now, solve that part of the problem and rewrite your question with the answer.

$18 + 7 = 25$
$25 - 5$

❻ Ask yourself if there is **Subtraction** - ...**YES**
Now, solve that part of the problem.

This is your answer.
$25 - 5 = 20$

This is the way it should look in your notes.

$6 \times 3 + 7 - 10 \div 2 =$ _____
$6 \times 3 + 7 - 5 =$ _____
$18 + 7 - 5 =$ _____
$25 - 5 =$ 20

Name: _____ Date: _____

Practice: BEDMAS 1 of 3

Remember to do these steps in this order!!

Brackets, Exponents, Division, Multiplication, Addition, Subtraction

1. $2 + 3^2 - 6 =$ _____ *Show your steps.

2. $3 \times 5 + 2^2 =$ _____ *Show your steps.

3. $42 \div 6 + 3 =$ _____ *Show your steps.

4. $5\,(2 - 1) - 3 \times 2^3 =$ _____ *Show your steps.

Name: _____ Date: _____

Practice: BEDMAS 2 of 3

5. $3^3 \div 3 + (1 + 4) =$ _____ *Show your steps.

6. $5 \div 5 + 3 \times 7 =$ _____ *Show your steps.

7. $(6 \times 7) \div 6 - 1 =$ _____ *Show your steps.

Name: _____ Date: _____

Practice: BEDMAS 3 of 3

Show your steps.

1. $6 + 5 + (26 - 19) - 5 =$ _____

2. $8 \div 4 - 1 + 2 + 2^2 =$ _____

3. $5^2 - 8 \times 2 =$ _____

4. $10 - 2 + (6 \times 4) =$ _____

5. $(5 \times 3) \div 3 - 2 =$ _____

Name: ______________________ Date: ____________

Practice: Place Value – Numbers to Words

Millions			Thousands			Ones						
hundred	ten	one	hundred	ten	one	hundred	ten	one	•	tenths	hundredths	thousandths
			3	4	5	2	0	1	•			
								9	•	3	6	
									•			
									•			

1. You are given the number 345 201. How do you know how to read it? Put the number into the chart. (Remember if the decimal is not written in, it is at the end of the number on the right-hand side.)
   It would read three hundred forty-five thousand two hundred one.

2. You are given a decimal number, 9.36, how do you read it? Put the number into the chart.
   It would read nine and thirty six hundredths (and means decimal).

Name: _____ Date: _____

Practice: Place Value – Numbers to Words 2 of 3

Write these numbers into words. Use the chart to help you.

1. 275.36 _____

2. 102 360 402 _____

3. 2340 _____

4. 300.45 _____

5. 100 230 000 _____

Now write the number from the words.

1. four hundred thirty-three thousand _____

2. seven and forty-two hundredths _____

3. six thousand one hundred thirteen _____

4. two million six hundred seven and five tenths _____

Name: ______________________ Date: ____________

Practice: Place Value – Numbers to Words

Identify the place value of the number that is underlined.

1. 5613 ______________________

2. 347.29 ______________________

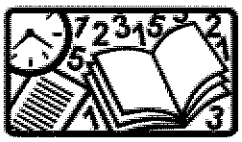
3. 3 678 900 ______________________

Numbers to Words

1 – one	11 – eleven
2 – two	12 – twelve
3 – three	13 – thirteen
4 – four	14 – fourteen
5 – five	15 – fifteen
6 – six	16 – sixteen
7 – seven	17 – seventeen
8 – eight	18 – eighteen
9 – nine	19 – nineteen
10 – ten	20 – twenty

NOTES:

Units of Time



Time influences many of our daily activities, such as waking up in the morning, beginning work, watching favourite television shows, following a timetable in school.

Time is measured or described using a variety of units that refer to different lengths of time. Units from smallest to largest are illustrated below.

60 seconds = 1 minute
60 minutes = 1 hour
24 hours = 1 day
7 days = 1 week
4 weeks = 1 month
52 weeks = 1 year
12 months = 1 year
100 years = 1 century
10 centuries = 1 millennium

Examples Let's take some TIME to examine TIME!

A) How many seconds are in 1 hour?

1 hour = 60 minutes and 1 minute = 60 seconds

1 hour = 60 minutes × 60 seconds/minute
= 3600 seconds

OR

1 minute = 60 seconds

60 minutes (or 1 hour) = 60 seconds × 60
= 3600 seconds

NOTES:

B) How many minutes are in 1 week?

There are 7 days in 1 week and there are 24 hours in 1 day and there are 60 minutes in each hour.

1 week = 7 days
= 7 × 1 day
= 7 × 24 hours
= 7 × 24 hours × 60 minutes/hour
= 10 080 minutes

Think About ...

How you use time in:

- **home** life (e.g., planning events with family, watching TV, eating meals)
- **community** life (e.g., community events, sports practices and games, opening and closing of stores)
- the **workplace** (e.g., starting and ending shifts, breaks, meetings, appointments, deliveries)

Name: _____ Date: _____

Practice: Units of Time

1. 3 hours = _____ minutes

2. 4 days = _____ hours

3. 3 weeks = _____ days

4. 120 seconds = _____ minutes

5. 48 hours = _____ days

6. 36 months = _____ years

7. 52 weeks = _____ months

8. 52 weeks = _____ year(s)

9. 240 minutes = _____ hours

10. 100 years = _____ century

NOTES:

Converting Celsius and Fahrenheit Temperatures

Temperature is commonly measured in Canada using the **Celsius scale**. The unit of measurement is degree Celsius (°C).

Another scale used to measure temperature is the **Fahrenheit scale**. The United States and some countries in Europe measure temperatures in degrees Fahrenheit (°F).

°Fahrenheit	°Celsius
96	35.5
95	35
91.5	33
69	20.5
60	15.5
55.5	13
50	10
32	0
28.5	–2
5	–15

NOTES:

Converting from Celsius to Fahrenheit

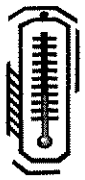
To **convert** from Celsius to Fahrenheit, use the following formula:

$$°F = \frac{9}{5} \times \_\_°C + 32$$

To **estimate** a temperature in °F when given a temperature in °C:

Take the temperature in °C, multiply by 2 and add 20.

Example If the temperature is 20°C, what is the temperature in °F?



Exactly

$°F = \frac{9}{5} \times 20°C + 32$

$= 36 + 32$

$= 68°F$

Approximately

$°F = 20°C \times 2 + 20$

$= 40 + 20$

$= 60°F$

Converting from Fahrenheit to Celsius

To **convert** from Fahrenheit to Celsius, use the following formula:

$$°C = \frac{5}{9}(\_\_°F - 32)$$

To **estimate** a temperature in °C when given a temperature in °F:

Take the temperature in °F, divide by 2 and subtract 15.

Example 85°F would be how many °C?

Exactly

$°C = \frac{5}{9}(85°F - 32)$

$= \frac{5}{9}(53)$

$= 29.4°C$

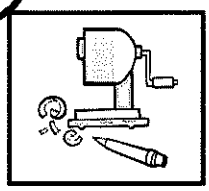
Approximately

$°C = 85°F \div 2 - 15$

$= 42.5 - 15$

$= 27.5\ °C$

Name: _____ Date: _____



Practice: Converting Temperatures

1. Use a variety of strategies to estimate the following temperatures.

a) 30°C = ☐ °F

b) 80°F = ☐ °C

c) 25°C = ☐ °F

d) 65°F = ☐ °C

e) 0°C = ☐ °F

f) 70°F = ☐ °C

g) 12°C = ☐ °F

h) 92°F = ☐ °C

2. Amandeep is investigating tropical locations to plan a winter vacation. He is experiencing some difficulties because his sources identify average temperatures using the Fahrenheit scale. Help Amandeep convert each temperature to Celsius.

Cuba	68°F
Jamaica	78°F
Hawaii	74°F
Greece	70°F
Australia	66°F
England	56°F

3. Brendon left London, where the temperature was 21°C, and arrived in Florida, where the temperature was 70°F. Which location had the warmer temperature?

Think About ...

How do you and your family use temperature at **home**? Do you use degrees Fahrenheit or Celsius? How is temperature use in the **workplace**? Think of examples of how temperature is important to chefs, welders, pet store clerks, factory workers and millwrights.

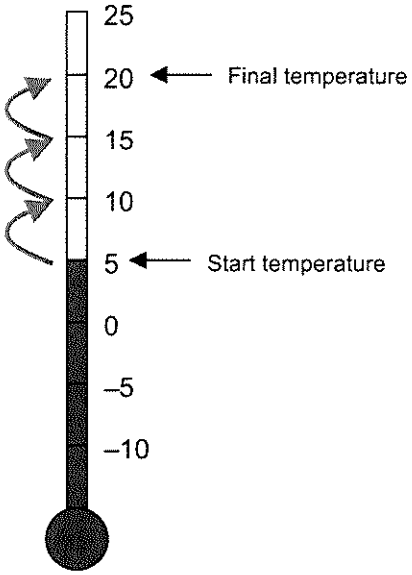
NOTES:

Temperature Changes

A thermometer or a number line can be used to help determine changes in temperature.

Example

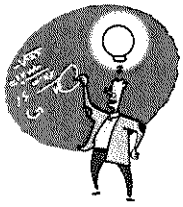
A) In the morning, the temperature outside was 5°C. By late afternoon, the temperature was 20°C. How many degrees did the temperature increase during the day?

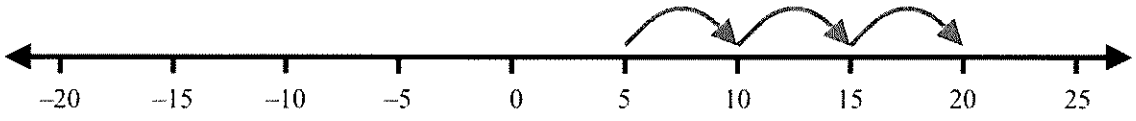


5°C to 20°C = 15

The temperature change is +15°C

Temperature change is a **positive number** if the temperature increases.

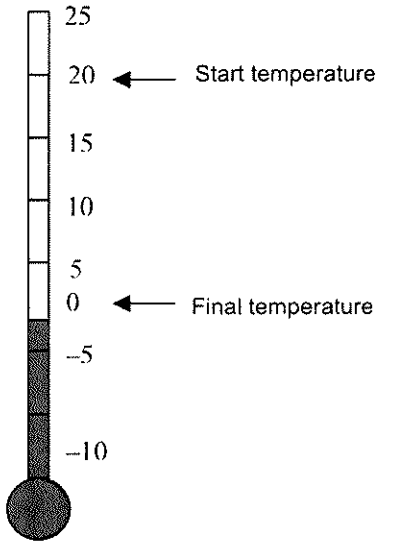




Hint: Temperature changes are just like adding and subtracting integers. Think back to the hot air balloon examples in Adding Integers and Subtracting Integers.

NOTES:

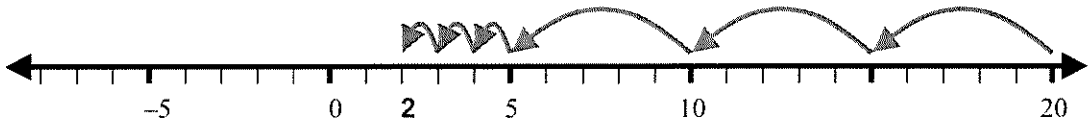
decreased to 2°C. What is the change in temperature?



20°C to 2°C = 18

The temperature change is –18°C

Temperature change is a **negative** number if the temperature decreases.



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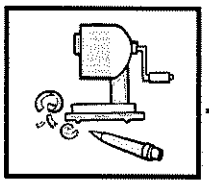


Practice: Calculating Temperature Changes

1. A storm was blowing across southern Alberta. At 2:00 p.m., the temperature was 26°C. An hour later, it had dropped by 7°C. At 4:30 p.m., the temperature rose by 5°C. Two hours later, the temperature dropped another 2°C. What was the temperature at 6:30 p.m.?

2. Daniel and Missy wanted to examine world temperature changes. They found the daily low and high temperatures for one day at various locations around the world. Use the data they collected below to calculate the temperature change at each location.

   Use a thermometer or number line to indicate the following temperature changes.

Location	Temperatures	Temperature Change
1	5°C	to 25°C
2	–5°C	to 18°C
3	–10°C	to –30°C
4	8°C	to –1°C
5	0°C	to –28°C

Remember:

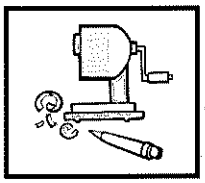
+ indicates an increase in temperature
– indicates a decrease in temperature.

3. Examine the temperature changes above to answer the following questions.

   a) Which location had the:
   - greatest temperature change?
   - smallest temperature change?

   b) Using sentences, explain where you would like to live (locations 1 through 5) and give reasons for your choice.

Name: _____ Date: _____



Practice: Temperatures on a Thermometer

1. Use experimentation, reference materials or other sources of information to fill in the temperatures in the chart below. Use the last two rows to take interesting temperatures of your own.

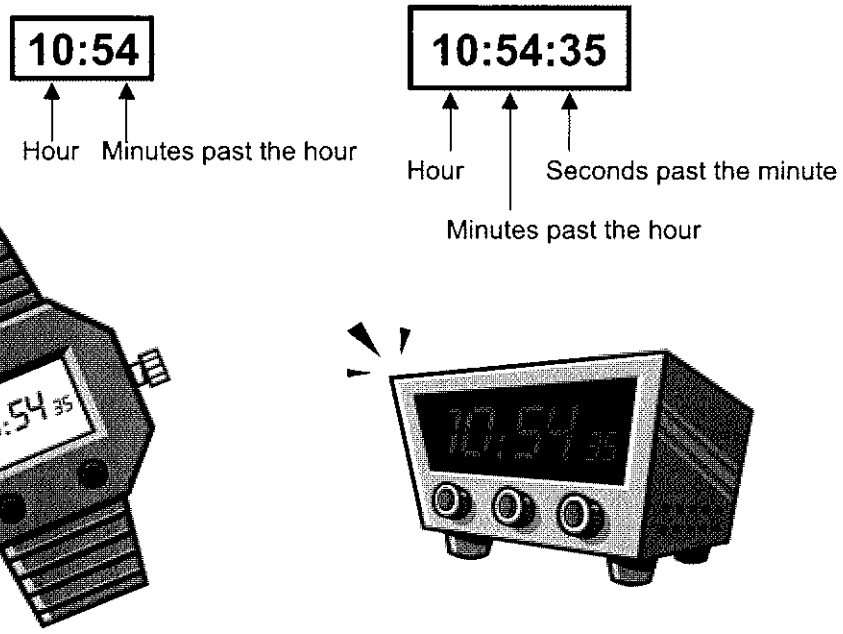
Condition	Temperature (°C)
Freezing temperature of water	
Boiling point of water	
Normal body temperature	
Normal room temperature	
Armpit temperature	
Hands before rubbing them together	
Hands after rubbing them together for 10 seconds	

2. Label and identify the temperatures from the table above on printed copy of the thermometer on the next page.

NOTES:

Analog and Digital Timepieces

Digital timepieces use a liquid crystal display (LCD) or other methods to display the time. The numbers are referred to as digits, thus *digital*.



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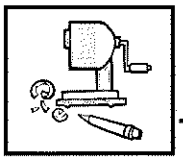


Practice: Comparing Analog and Digital Timepieces

1. Examine the timepieces used in school, other locations or worksites within the community.

   a) Record the number and types of analog and digital timepieces and compare the data.

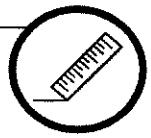
   b) Develop a chart of the data using a spreadsheet, pencil and paper or another method.

   c) Write a statement of conclusion about the types of timepieces on your chart.

Knowledge and Employability Studio
Mathematics

Shape and Space: Measurement:
Time:
Units of Time 4/4

Name: _____ Date: _____



Practice: Comparing Analog and Digital Timepieces
Response Page

NOTES:

12-hour and 24-hour Clocks

12-hour Clock

The 12-hour clock system displays time for a 12-hour period, which is half of the 24-hour day.

- Time from midnight to noon is represented by the abbreviation "a.m."
- Time from noon to midnight is represented by the abbreviation "p.m."

a.m. is from *ante meridiem*, which means before midday.
p.m. is from *post meridiem*, which means after midday.

Most analog clocks are 12-hour clocks. The time on this analog clock reads 6:13, but that could be a.m. (morning) or p.m. (evening).

24-hour Clock

The 24-hour clock system shows time for a 24-hour period of time.

On the 24-hour clock, the first 12 hours of the day are numbered 1 to 12. The next hour is 13. The next hour is 14, and so on.

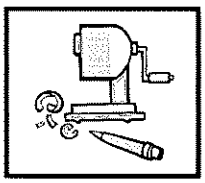
The military uses the 24-hour clock system to avoid confusion in determining if a given time is **a.m.** or **p.m.** For this reason, the 24-hour clock is often referred to as **military time**.

12-hour clock	24-hour clock	
7:00 a.m.	07:00	Seven hundred hours or "O" (*oh*) seven hundred
11:00 a.m.	11:00	Eleven hundred hours
12:00 a.m.	12:00	Twelve hundred hours
1:00 p.m.	13:00	Thirteen hundred hours
2:00 p.m.	14:00	Fourteen hundred hours
↓	↓	↓
11:00 p.m.	23:00	Twenty-three hundred hours

Note: **a.m.** and **p.m.** symbols are not needed with a 24-hour clock.

Some analog timepieces have the 24-hour clock numbers printed in an inner circle on the clock face. Many digital timepieces allow you to select the 12-hour or 24-hour clock system by the press of a button.

Name: _____ Date: _____



Practice: Reading 12-hour and 24-hour Clocks

1.

a) If it is 1:00 p.m., what time is it on a 24-hour clock?

b) If it is 3:00 a.m., what time is it on a 24-hour clock?

c) If it is 2200 hours, what time is it on an analogue clock?

d) If it is 1500 hours, what time is it on an analogue clock?

e) If it is 6:00 p.m., what time is it on a 24-hour clock?

f) If it is 1900 hours, what time is it on an analogue clock?

2.

a) If it is 2:20 a.m., what time is it on a 24-hour clock?

b) If it is 7:43 p.m., what time is it on a 24-hour clock?

c) If it is 12:34 on a 24-hour clock, what time is it on an analogue clock?

d) If it is 19:12 on a 24-hour clock, what time is it on an analogue clock?

e) If it is 4:55 p.m., what time is it on a 24-hour clock?

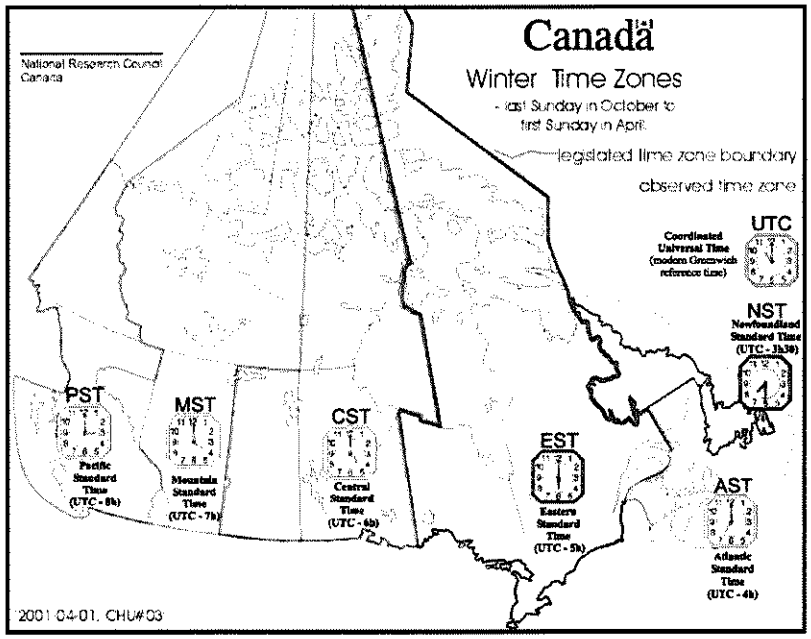
f) If it is 16:03 on a 24-hour clock, what time is it on an analogue clock?

NOTES:

Time Zones

The TV show *Hockey Night in Canada* begins at 6:00 p.m. in Edmonton, Alberta, but at 8:00 p.m. in parts of Ontario.

Many TV programs are advertised at different times, e.g., 8:00 p.m. Central time is 7:00 p.m. Mountain time.



The time of day is different depending upon world location. Why are we not all on the same time?

You probably already know that when it is nighttime in Alberta, it is daytime in another part of the world. This is because the earth rotates on its axis once every 24 hours. Times on earth relate to this rotation.

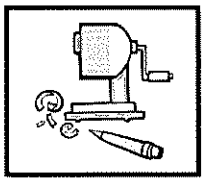
The earth is a sphere that makes one full rotation every 24 hours. A full rotation is 360°.

$$360° \div 24 \text{ hours} = 15°/\text{hour}$$

Every hour, the Earth rotates about 15°. The 24 time zones were created to represent each 15° rotation of the Earth.

Greenwich, England, is 0°, which is the origin of longitudes on the globe.

Name: _____ Date: _____



Practice: Calculating Time Zones

1. Using a time zone map of the world found in an atlas or on the Internet, determine what time it is in the following locations if it is currently **1:30 p.m. in Alberta**.

   a) Moscow, Russia

   b) Hong Kong, China

   c) Tokyo, Japan

   d) Newfoundland, Canada

   e) Paris, France

   f) Sydney, Australia

2. Martha lives in Red Deer and her grandmother lives in Indonesia. It is her grandmother's birthday on Tuesday. She wants to call her grandmother at 7:00 p.m. on the night of her birthday. When will Martha have to make her call?

3. Tabatha attends school 5 days per week and spends $3\frac{1}{4}$ hours each morning and $2\frac{1}{2}$ hours each afternoon in class. How many minutes does Tabatha spend in school each day of the week?

NOTES:

Prime Numbers

Prime numbers are numbers that can only be divided by themselves or by 1.

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

Multiples and Factors

Multiples of a number are shown as groups of numbers.

Example: The first 6 multiples of 2 are 2, 4, 6, 8, 10, 12

Factoring is like taking a number apart. It means to write a number as the product of its factors.

Example: $3 \times 5 = 15$
3 and 5 are factors of 15
15 is a multiple of 3 and 5

Name: _____ Date: _____

Practice: Multiples and Factors

Multiples

Think about the number 2. If you keep adding 2 to the number 2 you would get 2, 4, 6, 8, and 10. These are called the multiples of 2. Let's look at some more examples.

Multiples of 3 are 3, 6, 9, 12, 15...

Multiples of 4 are 4, 8, 12, 16...

1. List the multiples of 8 =

_____

2. List the multiples of 7 =

_____

3. List the multiples of 4 =

_____

4. List all the multiples of 5 =

_____

5. List all the multiples of 6 =

_____

6. List all the multiples of 10 =

_____

Name: _____ Date: _____

Practice: Factors

Factors

Factors are all of the numbers that you are able to divide evenly into a number. Look at the example of factors of the number 12.

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

7. List all the factors of 24 =

_____

8. List all the factors of 36 =

_____

9. List all the factors of 54 =

_____

10. List all the factors of 64 =

_____

11. List all the factors of 32 =

_____

12. List all the factors of 45 =

_____

Name: _____ Date: _____

Getting Started – Unit Test

1. What does each letter stand for when you are using order of operations?

   B _____

   E _____

   D _____

   M _____

   A _____

   S _____

2. $5 + 13 \times 4 =$ _____

3. $36 \div 12 \times 3 =$ _____

4. $21 - (5 \times 2) =$ _____

5. $22 + 10 =$ _____

Multiples

6. List four multiples of

   2 _____

   4 _____

   5 _____

   6 _____

   3 _____

Factors

7. List the factors of

   10 _____

   12 _____

   8 _____

   6 _____

   20 _____

Using Your Calculator

8. What does each symbol below on your calculator mean? Write your answer on the line beside the symbol.

   $\sqrt{}$ _____

   % _____

   3^2 _____
   (What does the 2 mean?)

Units of Time

9. Fill in the blanks below.

   _____ seconds = 1 minute

   _____ minutes = 1 hour

   _____ hours = 1 day

   _____ weeks = 1 year

Temperature

10. Temperature can be measured using the _____

    scale or the _____ scale.

11. If you live in Canada, you use the _____ scale.