**Applied Math** Name _____
**Summer Work/Fun**

**Class:** Applied Math **Teacher:** Mr Swenson
**DUE:** FIRST DAY OF SCHOOL

Ladies and gentlemen! Thank you for flying AirMath! The summer has often been described as an educational wasteland, where good minds go to die. However, to prevent certain decay and possible death of your math skills, I have put together some work for you to do before class begins in the fall.

Also, here are some basic supplies you will need for success in Applied Math:

| Apps and sites we will use in class: | Swenson's Contact Info |
|---|---|
| • YouTube<br>• Desmos<br>• www.airmath.net<br>• QR Code reader<br>• Google Classroom | |

We will be using computers almost daily. Our class will require use of your student.bbrsd.org account, so make sure you have your password and account set up on your devices. Google Sheets, Slides, Documents, Maps and Classroom will be used nearly every day.

Lastly, provide the best email for contacting your parent or guardian:

_____

Have a delightful and math-filled summer!

Regards,

Mr Swenson
www.airmath.net
wswenson@bbrsd.org

**Applied Math**
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## Scale Drawing

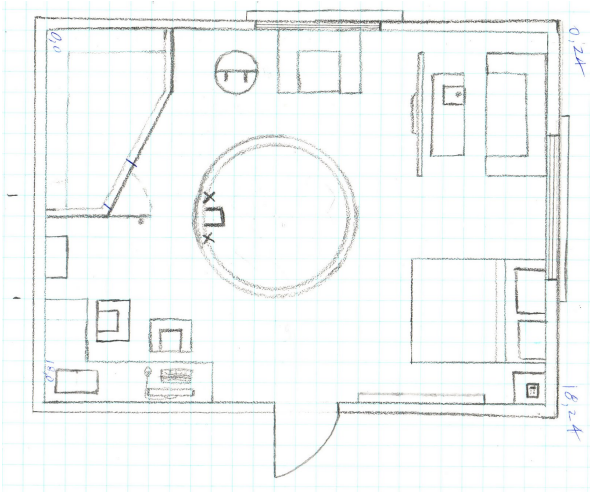
In the grid paper below, make a scale drawing of a room in your place of residence. You must measure and include the furniture, closets, windows and doors.

Chosen Room: _____

Dimensions of the room: _____

How high are the ceilings? _____

Scale: 1 unit = _____
(suggested 1 unit – ½ foot)



Sample Drawing

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**Data Collection**

For one week, please record the following data from your personal habits. The dates I recorded are _____.

| Category | Fri | Sat | Sun | Mon | Mean |
|---|---|---|---|---|---|
| # of hours slept | | | | | |
| # of hours watching videos | | | | | |
| # of miles in a car | | | | | |
| # of min of exercise | | | | | |
| # of min talking (actual speaking) to an adult | | | | | |
| # of digital messages sent | | | | | |
| For ONE hour, count the number of times you unlock your device | | | | | |
| Approximate time you went to SLEEP (not to bed) | | | | | |

I observed the following:

1.

2.

3.

**Applied Math**
**Summer Work/Fun**

**Directions:** Show all work where you can. Circle your answers.

**Evaluate the expression.**

**1.** $-11 + 6$ **2.** $-7 - 19$ **3.** $9(-9)$ **4.** $42 \div (-6)$ **5.** $5(9 - 15)$ **6.** $\frac{30 - 6}{2 \cdot 4^2 - 20}$

**Evaluate the expression. Write your answer in simplest form.**

**7.** $\frac{3}{8} + \frac{7}{8}$ **8.** $\frac{2}{3} - \frac{5}{12}$ **9.** $12.65 - 9.899$

**10.** $\frac{6}{9} \times \left(-\frac{12}{14}\right)$ **11.** $\frac{18}{7} \div \frac{6}{14}$ **12.** $17.5 \times 3.65$ **13.** $\frac{1}{3} - \left(\frac{2}{9} + \frac{5}{6}\right)$

**Evaluate the expression for the given value of the variable.**

**30.** $-6x$ when $x = -9$ **31.** $\frac{y}{7}$ when $y = -49$

**Solve the equation if possible.**

**62.** $16x + 24 = 7(x + 6)$ **63.** $-4(2x - 1) = 3 - 8x$

## Interest

The formula to calculate new amount, $A$, after $t$ years when $P$ is the principal (initial amount) with rate $r$ compounded $n$ times per year is $A = P\left(1 + \frac{r}{n}\right)^{nt}$. Simple interest is calculated using $I = P \cdot r \cdot t$, where $I$ is the interest.

**Find each balance.**

| | Principal | Interest Rate | Compounded | Time (years) | Balance |
|---|---|---|---|---|---|
| **1.** | $400 | 7% | annually | 3 | |
| **2.** | $8,000 | 5% | annually | 9 | |
| **3.** | $1,200 | 4% | semi-annually | 2 | |
| **4.** | $50,000 | 6% | semi-annually | 6 | |

**Find the simple interest.**

**5.** $900 deposited at an interest rate of 3% for 5 years

_____

**6.** $1,348 deposited at an interest rate of 2.5% for 18 months

_____

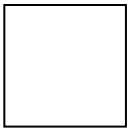
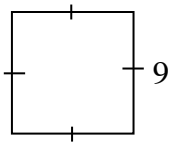
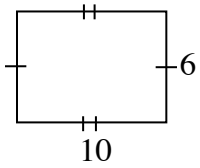
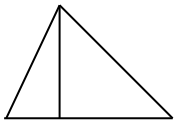
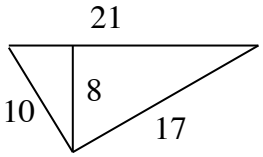
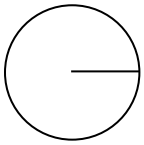
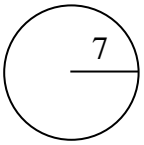
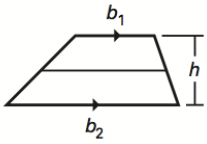
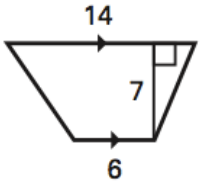
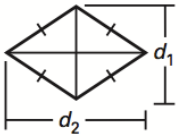
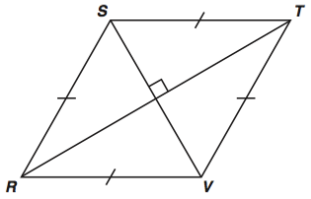
**Complete each table. Compound the interest annually.**

**7.** $5,000 at 6% for 4 years.

| Principal at Beginning of Year | Interest | Balance |
|---|---|---|
| Year 1: $5,000 | | |
| Year 2: | | |
| Year 3: | | |
| Year 4: | | |

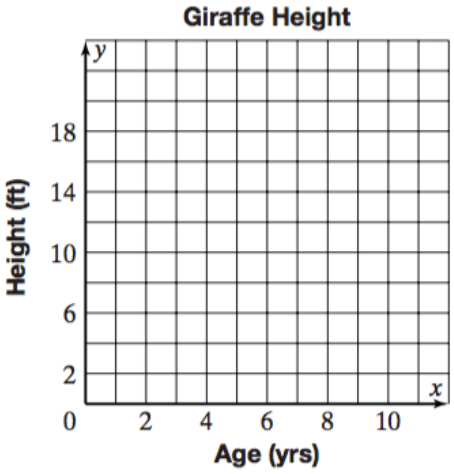
**Applied Math**
**Summer Work/Fun**

## Complete the following formulas using the variables indicated

| Figure | Perimeter | Area | Example: Find the area and perimeter of each. ($\pi \approx 3.14$) |
|---|---|---|---|
| **Square**  | | |   |
| **Rectangle**  | | |   |
| **Triangle**  | | |   |
| **Circle**  | | |   |
| **Trapezoid**   | | |   |
| **Rhombus**   | | | What is the area, in square centimeters, of rhombus $RSTV$ if $RT = 16$ cm and $SV = 12$ cm?   |

## Basic Statistics

A giraffe was 1 ft tall at birth, 7 ft tall at the age of 4, and $11\frac{1}{2}$ ft tall at the age of 7.




1. Use the data to make a (age, height) scatter plot.
2. Draw a trend line.
3. Write an equation for your trend line in slope-intercept form.

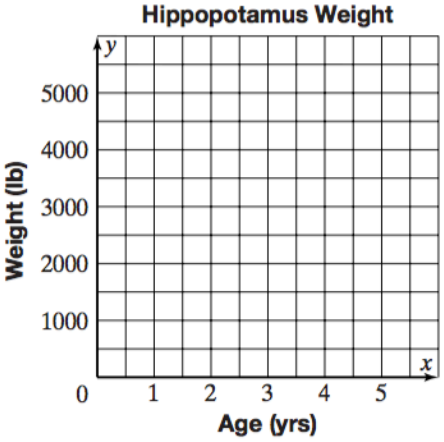
_____

4. Use your equation to find the following information.
   a. the giraffe's height at the age of 5

   _____

   b. the age at which the giraffe was 16 ft tall

   _____




A hippopotamus weighed 700 lb at the age of 1 and 1,900 lb at the age of 3, and 2,500 lb at the age of 4.

5. Use the data to make a (age, weight) scatter plot.
6. Draw a trend line.
7. Write an equation for your trend line.

   _____

8. Use the equation to predict the following information.
   a. the hippo's weight at the age of 8

   _____

   b. the age at which the hippo weighed 7,900 lb

   _____

9. Can this equation be used to predict the hippo's weight at any age? Explain.

   _____

   _____