

11th Grade
Lesson Plan
Packet

3/30/2020-4/3/2020

Remote Learning Packet

NB: Please keep all work produced this week. Details regarding how to turn in this work will be forthcoming.

March 30 - April 3, 2020

Course: 11 Art

Teacher(s): Ms. Frank clare.frank@greatheartsirving.org

Weekly Plan:

Monday, March 30

- Continuous contour line drawings of hand, timed
- Sketch hand and forearm; label parts

Tuesday, March 31

- Blind continuous contour line drawings of hand, timed
- Positive / Negative space studies of hand, timed

Wednesday, April 1

- Terms and definitions: contour, convex, concave
- Drawing exercise and labeling convex and concave surfaces

Thursday, April 2

- Terms and definitions: topographical linework, cross-contour linework
- Drawing exercise implementing topographical linework

Friday, April 3

- Continuous contour line drawings of feet and ankles, timed
- Drawing exercise implementing cross-contour linework

Statement of Academic Honesty

I affirm that the work completed from the packet is mine and that I completed it independently.

I affirm that, to the best of my knowledge, my child completed this work independently

Student Signature

Parent Signature

For all assignments in art this week use a pencil and your sketchbook. If you don't have your sketchbook use plain or lined paper instead. Remember to write your name, grade and section, and the date on all pages.

Monday, March 30

1. Using a full page, make **three** 1 ½ minute **continuous contour line drawings** of your hand in varied positions. *See attached resources for guidelines, and notice that in a continuous contour line drawing you do not lift your pencil from the paper for the duration of the drawing - and no erasing!*
2. Using a full page, make a 2-minute back-and-front life-size drawing of your hand and forearm. Add details as needed, and label the parts of the hand: thumb, index finger, middle finger, ring finger, little finger, nails, nail beds, knuckles and joint creases (three per finger), wrist, wrist joint, wrist tendons, and wrist creases. Notice the veining on the back of your hand and the creases on the palm of your hand.

Tuesday, March 31

1. Using full pages, make **three** 1-minute drawings of your hands and forearms using **blind continuous contour line** drawing. *See attached resources, and notice that in this method you look at your subject 100% of the time, not even glancing at your drawing while you draw!*
2. Using one or two full pages, make **two** 5-minute drawings of your hands and forearms that emphasize positive/negative shape relationships. If both drawings are on the same page, the space in between can be a very interesting negative space. Consider placement and configuration.
 - For each begin by moving your fingers and thumb and rotating your wrist to create interesting interaction of shapes (no recognizable “messages”) and enclosed versus open spaces, with some bent and some straight until you arrive at your chosen arrangement.
 - Make a quick, light lay-out sketch to establish shape relationships and scale (1 minute each). Remember to include the wrist and forearm.
 - Use contour lines of varied weights to emphasize certain positive shapes, and use value to increase the contrast between positive and negative shape areas. (5 minutes each, or 10 minutes total)
 - Use your final minutes to tweak the value shapes for overall compositional impact.

Wednesday, April 1

1. Copy the terms and definitions for the following terms: contour, concave, convex (see attachment)
2. Position your hand and fingers in such a way that you obtain interesting positive/negative shape relationships as well as contrasting convex/concave relationships. Lightly make a quick 2-minute layout sketch, then elaborate and emphasize certain contours and curves with varied weight of hand. Next label at least four surfaces each as convex or concave.

Thursday, April 2

1. Copy the terms and definitions for the following terms: topographical linework, cross-contour linework (see attachment)
2. Close your hand into a fist, rotated with your thumb resting on top and pointing away from your body. Lightly make a quick contour line drawing of your hand in this pose, life-size, then use **topographical linework** and varied weight of line to show curvature of form and dimensionality.

Friday, April 3

1. Set yourself up so that you can observe your bare feet and ankles while you draw. Make sure that your position is comfortable enough to and allows you enough control over the quality of your drawing (pay attention to body mechanics). Make **three** 1 ½ minute continuous contour line drawings of your feet and ankles in slightly varied poses.
2. Using a full page, make a more sustained drawing of your foot and ankle, and elaborate with **cross-contour linework** to emphasize curvature of surface and dimensionality.
 - Time yourself for your initial layout sketch, giving yourself 2 minutes to lightly sketch in the basic shapes, proportions and configurations.
 - Work general to specific.
 - Use heavier, darker lines to imply a surface is closer, and lighter, thinner lines to imply a surface is curving away from you.
 - Changes in direction and density help show changes in surface direction and concavity/convexity.
 - A light contour drawing is helpful for establishing shapes and areas, but the outlines and contours should end up being implied.



Example of cross-contour in legs and feet

Vocabulary, Definitions and Examples:

Contour - A contour is a line defining a form or edge. Contour lines include not only outlines, but other changes or shifts in planar surface.

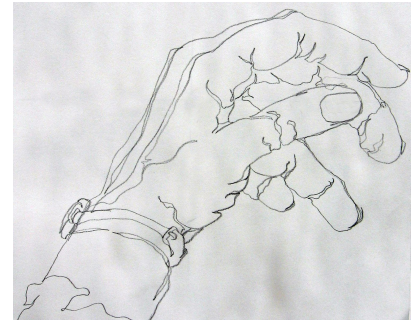
Convex - having a surface curved or rounded outward like the exterior of a sphere

Concave - having a surface curved, or arched inward, like the interior of a bowl



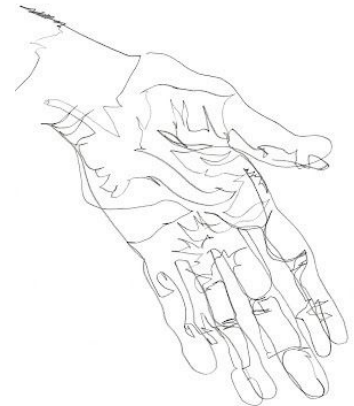
Contour Line Drawing - A method of drawing in which a subject is drawn by representing its contours. Varied weight of line can be used to enhance the dimensionality and energy of a contour line drawing, emphasizing important areas and directing the viewer's eye.

Weight of Line - By increasing or lessening the hand's weight on the pencil, a line can be made thicker and darker or thinner and lighter. Varied weight of line increases visual interest, creates emphasis, and implies space and dimension. A thick, dark line may seem to come toward the viewer while a thin, light line may seem to recede into the distance.



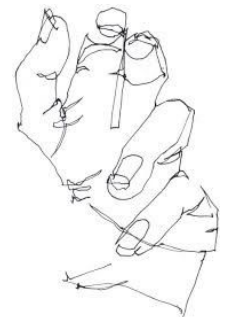
Continuous Contour Line Drawing - A method of drawing in which the artist draws the subject with a single, continuous, unbroken line, using that line to follow along contours along the edges and within the subject. In this method the pencil is not lifted from the page for the duration of the drawing; instead the pencil imitates the artist's eye, following successive visual paths along contours.

It may be helpful to imagine both your pencil and your eye as an ant traveling the ridges and valleys of your subject. Attempt to be looking at your subject 90% of the time, only glancing at the page to make sure your pencil is in the correct vicinity. If moving the pencil to a different area, remember you will be leaving a pencil trail.

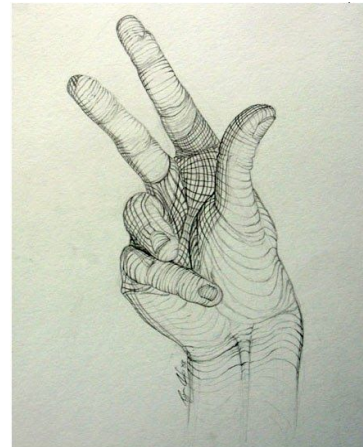
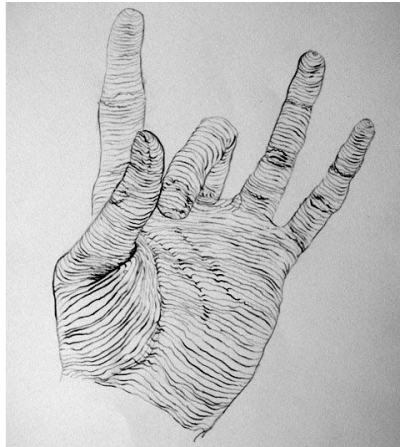


Blind Continuous Contour Line Drawing - This method is similar to continuous contour line drawing except that you look at your subject 100% of the time, with not a single glance at your drawing for the duration of the exercise! Hence "blind". Again, your drawing uses a single, continuous unbroken line.

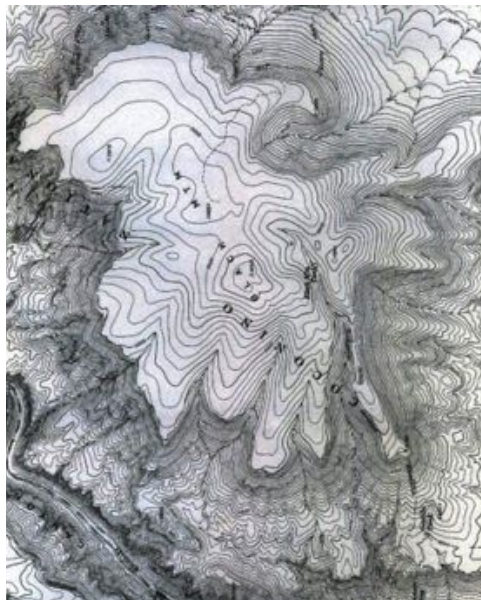
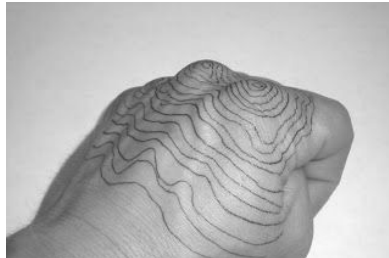
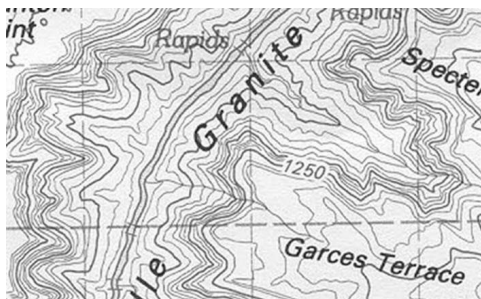
Yes, your drawing will look a little strange but this is a thoughtful exercise. When engaged in in good faith and practiced regularly, this exercise enhances your keenness of observation, your practices of seeing an object both as a whole and as composed of parts, and improves your coordination.



Cross-Contour Linework - This method of drawing uses line networks to illustrate the dimensionality of objects and surfaces. It differs from contour line drawing in that the contours of the subject are not drawn directly; instead, they are implied. Note that along contours the angle shift of curves is steeper and that the lines appear to get closer together. There is a similarity to hatching and cross-hatching.



Topographical Linework - This is a method of drawing that uses a system of line patterns and linear marks to describe surfaces and their shifts in direction or height. The topographical lines are closer together when there is a steeper drop in surface incline on the maps below. Note the relationship between topographical mapping for geography and its application to drawing the hands, below.



Remote Learning Packet

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March 30 - April 3, 2020

Course: 11 Calculus I

Teacher: Mr. Simmons michael.simmons@greatheartsirving.org

Weekly Plan:

Monday, March 30

Worksheet 4.2.I

Tuesday, March 31

Worksheet 4.2.I answer key

Wednesday, April 1

Worksheet 4.2.II

Thursday, April 2

Worksheet 4.2.II answer key

Friday, April 3

Worksheet 4.3.I

Statement of Academic Honesty

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Monday, March 30

Dearest students, hello! I hope you've enjoyed your leisure over the past two weeks. While I am heartbroken that I can't be with you in person to guide you through the wonderful beauties of mathematics over these next few weeks, I see some good coming from the circumstances, as each of you will be challenged - and surely will rise to meet the challenge - to engage in mathematical inquiry in a more independent way. The frustrations you will feel in your isolated struggle for mathematical understanding, no matter your success, will doubtless sow seeds of true mathematical thought - and winter always ends in a fruitful spring. The essentially collaborative nature of our class has unfortunately (though necessarily) been temporarily suspended, so take courage as you embark on this lonely adventure, and look forward to our reunion in good time. Have fortitude, and I look forward to seeing you all again.

In the meantime, your individual adventures in math will be guided by written instructions contained in packets like this one. Your first instruction is to review the new vocabulary list. Make sure to go over every new definition in detail. Then, complete worksheet 4.2.I. As you do so, recall how much time we spend graphing derivatives and second derivatives, and then discussing the relationships between those graphs and the original. You'll probably want to use that knowledge on this worksheet.

Tuesday, March 31

Carefully read through the answer key to worksheet 4.2.I.

Wednesday, April 1

Complete worksheet 4.2.II.

Thursday, April 2

Carefully read through the answer key to worksheet 4.2.II.

Friday, April 3

Remember how last year you sketched graphs of polynomials? But there was always the frustration that while we knew a local maximum or local minimum lay between two turning points, we were never sure exactly where the hill or valley peaked or troughed. Well. Now we have calculus! Worksheet 4.3.I let's you show off the precision with which the powerful tools of calculus let you visualize polynomial functions. Before getting started on that worksheet, make sure to review concavity and inflection points in the vocabulary list. Then complete worksheet 4.3.I.

Vocabulary List

Calculus I

Mr. Simmons

March 30, 2020

Definition (RELATION). A relation is a set of ordered pairs consisting of elements from two sets. A relation relates input values, the first components of the ordered pairs, to output values, the second components of the ordered pairs. A relation is represented by a table, an equation, or a graph.

Definition (FUNCTION). A function is a relation that has exactly one output for every input. A function takes an input value and outputs a function value.

Definition (DOMAIN). A domain is the set of all input values for which a function is defined.

Definition (RANGE). A range is the set of output values that result from all the input values of a function.

Definition (LIMIT – INFORMAL). A limit is the value that a function value approaches as the input approaches some value.

Definition (LIMIT – FORMAL). To say that L is the limit of a function value $f(x)$ as the input x approaches c is to say that we can make $f(x)$ arbitrarily¹ close to L by taking x sufficiently² close to c .

Definition (LIMIT – ϵ - δ). The limit of a function value $f(x)$ as x approaches c is the number L if and only if, given any positive ϵ , there exists a positive δ such that, for all x strictly within distance δ of c (except c itself), $f(x)$ is strictly within distance ϵ of L .

Definition (CONTINUITY AT A POINT). A function is continuous at a point of its domain if and only if its limit equals its function value at that point.

Definition (CONTINUITY OF A FUNCTION). A function is continuous if and only if it is continuous at each point of its domain.

Definition (DERIVATIVE). The derivative of a function at a chosen input value, when it exists, is the slope of the tangent line of the function's graph at that point.

¹ **arbitrary** (adj.) c. 1400, "deciding by one's own discretion, depending on one's judgment," from Latin *arbitrarius* "of arbitration," hence "depending on the will, uncertain," from *arbiter*. The meaning in English gradually descended to "capricious, ungoverned by reason or rule, despotic" (1640s). Related: Arbitrarily; arbitrariness. —Etymonline.com

² **sufficient** (adj.) early 14c., from Old French *soficient* "satisfactory," or directly from Latin *sufficientem* "adequate," present participle of *sufficere* "to supply as a substitute," from *sub* "up to" + combining form of *facere* "to make, to do." —Etymonline.com

Definition (RATE OF CHANGE). A rate of change is the change of an output value relative to the change of the input value.

Definition (AVERAGE RATE OF CHANGE). An average rate of change is the change of a function value over an interval divided by the interval's width.

Definition (INSTANTANEOUS RATE OF CHANGE). An instantaneous rate of change is the limit of an average rate of change on an interval as the interval's width approaches zero.³

Definition (VELOCITY). Velocity is displacement relative to time.

Definition (AVERAGE VELOCITY). Average velocity is the displacement of an object over a time interval divided by the interval's duration.

Definition (INSTANTANEOUS VELOCITY). Instantaneous velocity is the limit of average velocity over a time interval as the interval's duration approaches zero.⁴

Definition (INCREASING FUNCTION). A function f defined on a domain D is said to be increasing on an open interval I if and only if $f(b) > f(a)$ for any two inputs a and b in I where $b > a$. If f is increasing on every open interval in D , we say simply that f is increasing.

Definition (DECREASING FUNCTION). A function f defined on a domain D is decreasing on an open interval I if and only if $f(b) < f(a)$ for any two input values a and b in I where $b > a$. If f is decreasing on every open interval in D , we say simply that f is decreasing.

Definition (GLOBAL MAXIMUM). A function f defined on a domain D has a global (or absolute) maximum point at c if and only if $f(c) \geq f(x)$ for all x in D . The value of the function at a maximum point is called the maximum value of the function.

Definition (GLOBAL MINIMUM). A function f defined on a domain D has a global (or absolute) minimum point at c if and only if $f(c) \leq f(x)$ for all x in D . The value of the function at a minimum point is called the minimum value of the function.

Definition (LOCAL MAXIMUM). A function f defined on a domain D is said to have a local (or relative) maximum point at the point c if and only if there exists some $\varepsilon > 0$ such that $f(c) \geq f(x)$ for all x in D within distance ε of c .

Definition (LOCAL MINIMUM). A function f defined on a domain D is said to have a local (or relative) minimum point at the point c if and only if there exists some $\varepsilon > 0$ such that $f(c) \leq f(x)$ for all x in D within distance ε of c .

Definition (EXTREMUM). An extremum is a maximum or a minimum. That is, given a function f , $f(c)$ is an extremum of f if and only if $f(c)$ is a maximum or a minimum of f .

Definition (CONCAVE UP). A function f defined on a domain D is said to be concave up on an open interval I if and only if $f'(b) > f'(a)$ for any two inputs a and b in I where $b > a$.

³ Note that *instantaneous rate of change* and *derivative* are synonyms.

⁴ Note that, unlike average velocity, instantaneous velocity is not a scientific concept, but a mathematical one. No instrument can measure change over a time interval of no duration. Note also that, since *instantaneous rate of change* and *derivative* are synonyms, instantaneous velocity is the derivative of displacement.

Definition (CONCAVE DOWN). A function f defined on a domain D is said to be concave down on an open interval I if and only if $f'(b) < f'(a)$ for any two inputs a and b in I where $b > a$.

Definition (CRITICAL POINT). A function f has a critical point at c if and only if $f(c)$ exists and either $f'(c) = 0$ or $f'(c)$ does not exist.

Definition (INFLECTION POINT). A function f has an inflection point at c if and only if $f''(c) = 0$.

Worksheet 4.2.1

Calculus I

Mr. Simmons

1. Find the absolute minimum and maximum values for $f(x) = x^2 - 1$ on the interval $[-1, 2]$.
2. Find the absolute minimum and maximum values for $f(x) = -\sqrt{5 - x^2}$ on the interval $[-\sqrt{5}, 0]$.
3. The first derivative of a function $y = f(x)$ is known to be $f'(x) = (x - 1)(x + 2)$. Use the derivative to determine:
 - (a) What are the critical points of f ?
 - (b) On what intervals is f increasing and decreasing?
 - (c) At what points, if any, does f assume local minimum and maximum values?
4. Use calculus to find the absolute maximum and minimum values of the function $f(x) = 4 - x^2$ on the interval $[-3, 1]$.
5. Consider the function $f(x) = 6x - x^2$. Use the function's first derivative to find the intervals on which the function is increasing and decreasing. Then, identify the function's local and extreme values – where they are assumed and what their values are.

Worksheet 4.2.1 – Answer Key

Calculus I

Mr. Simmons

1. Find the absolute minimum and maximum values for $f(x) = x^2 - 1$ on the interval $[-1, 2]$.

Solution. The key to these problems is to recognize the absolute extrema occur either at local extrema or at endpoints of a closed interval. To find local extrema, find where $f'(x)$ is 0:

$$\begin{aligned}f'(x) &= 0 \\2x &= 0 \\x &= 0\end{aligned}$$

and then find the value of $f(x)$ there:

$$\begin{aligned}f(0) &= (0)^2 - 1 \\&= -1.\end{aligned}$$

Since, therefore, -1 is a local extremum, it has a chance of being an absolute extremum. But let's test the endpoint -1 and 2 :

$$\begin{aligned}f(-1) &= (-1)^2 - 1 \\&= 1 - 1 \\&= 0\end{aligned}$$

and

$$\begin{aligned}f(2) &= (2)^2 - 1 \\&= 4 - 1 \\&= 3.\end{aligned}$$

Of -1 , 0 , and 3 , -1 is the absolute minimum and 3 is the absolute maximum.

2. Find the absolute minimum and maximum values for $f(x) = -\sqrt{5-x^2}$ on the interval $[-\sqrt{5}, 0]$.

Solution. Finding where $f'(x) = 0$ will tell us where any local extrema are:

$$\begin{aligned}f'(x) &= 0 \\ \frac{x}{\sqrt{5-x^2}} &= 0 \\ x &= 0\end{aligned}$$

(which, note, happens to be an endpoint), and so

$$\begin{aligned} f(0) &= -\sqrt{5 - (0)^2} \\ &= -\sqrt{5}. \end{aligned}$$

Testing the other endpoint $-\sqrt{5}$, we get

$$\begin{aligned} f(-\sqrt{5}) &= -\sqrt{5 - (-\sqrt{5})^2} \\ &= -\sqrt{5 - 5} \\ &= 0. \end{aligned}$$

So the absolute minimum is $-\sqrt{5}$ and the absolute maximum is 0.

3. The first derivative of a function $y = f(x)$ is known to be $f'(x) = (x - 1)(x + 2)$. Use the derivative to determine:

- (a) What are the critical points of f ?

Solution. Remember that a critical point of f is a point where $f(x)$ is defined, but where $f'(x)$ either is zero or doesn't exist. To find critical points, we find where $f'(x) = 0$:

$$\begin{aligned} f'(x) &= 0 \\ (x - 1)(x + 2) &= 0 \\ x &= 1, -2. \end{aligned}$$

The critical points of f are at $x = 1$ and $x = -2$.

- (b) On what intervals is f increasing and decreasing?

Solution. We know $f(x)$ will be increasing wherever $f'(x)$ is positive, and it will be decreasing wherever $f'(x)$ is negative. Well, by our knowledge of polynomials, we know that $f'(x)$ is positive on $(-\infty, -2)$ and $(1, \infty)$ and negative on $(-2, 1)$, so $f(x)$ is increasing on $(-\infty, -2)$ and $(1, \infty)$ and decreasing on $(-2, 1)$.

- (c) At what points, if any, does f assume local minimum and maximum values?

Solution. The function f will assume local extrema wherever $f'(x) = 0$, which happens at $x = 1, -2$. Since $x = -2$ is where $f(x)$ goes from increasing to decreasing, f will have a local maximum here, and similarly it will have a local minimum at $x = 1$.

4. Use calculus to find the absolute maximum and minimum values of the function $f(x) = 4 - x^2$ on the interval $[-3, 1]$.

Solution. First we find local extrema:

$$\begin{aligned} f'(x) &= 0 \\ -2x &= 0 \\ x &= 0; \\ f(0) &= 4 - (0)^2 \\ &= 4. \end{aligned}$$

Then we test endpoints:

$$\begin{aligned} f(-3) &= 4 - (-3)^2 \\ &= 4 - 9 \\ &= -5; \\ f(1) &= 4 - (1)^2 \\ &= 4 - 1 \\ &= 3. \end{aligned}$$

Of 4, -5, and 3, -5 is the absolute minimum (occurring at $x = -3$) and 4 is the absolute maximum (occurring at $x = 0$).

5. Consider the function $f(x) = 6x - x^2$. Use the function's first derivative to find the intervals on which the function is increasing and decreasing. Then, identify the function's local and extreme values – where they are assumed and what their values are.

Solution. To find where f is increasing and decreasing, we find where $f'(x)$ is positive and negative: $f'(x) = -2x + 6$ is positive on $(-\infty, 3)$ and negative on $(3, \infty)$, so f is increasing on $(-\infty, 3)$ and decreasing on $(3, \infty)$. Since $f'(x) = 0$ at $x = 3$, that's where f has the local extremum $f(3) = 6(3) - (3)^2 = 9$. Since f is changing from increasing to decreasing, 9 is a local maximum, not a minimum.

Worksheet 4.2.II

Calculus I

Mr. Simmons

1. Find the absolute minimum and maximum values for $f(x) = x^{\frac{4}{3}}$ on the interval $[-1, 8]$ and determine where they are assumed.
2. Consider the function $g(t) = -3t^2 + 9t + 5$. Use the function's first derivative to find the intervals on which the function is increasing and decreasing. Then identify the function's local extreme values, if there are any, stating where they are assumed and what their values are.
3. Consider the function $f(x) = (x + 1)^2$, for $-\infty < x \leq 2$. Identify the function's local extreme values in the given domain and determine where they are assumed.
4. Consider the function $y = -x^3 + 6x^2$, for $-1 \leq x \leq 5$. Identify the function's local extreme values in the given domain and determine where they are assumed.

Worksheet 4.2.II – Answer Key

Calculus I

Mr. Simmons

1. Find the absolute minimum and maximum values for $f(x) = x^{\frac{4}{3}}$ on the interval $[-1, 8]$ and determine where they are assumed.

Solution. We have

$$f'(x) = 0$$

$$\frac{4}{3}x^{\frac{1}{3}} = 0$$

$$x^{\frac{1}{3}} = 0$$

$$x = 0;$$

$$f(0) = (0)^{\frac{4}{3}}$$

$$= 0;$$

$$f(-1) = (-1)^{\frac{4}{3}}$$

$$= 1;$$

$$f(8) = (8)^{\frac{4}{3}}$$

$$= 16;$$

so $f(x)$, on the interval $[-1, 8]$, has the absolute minimum 0 at $x = 0$ and the absolute maximum 16 at $x = 8$.

2. Consider the function $g(t) = -3t^2 + 9t + 5$. Use the function's first derivative to find the intervals on which the function is increasing and decreasing. Then identify the function's local extreme values, if there are any, stating where they are assumed and what their values are.

Solution. We have

$$g'(t) = -6t + 9,$$

which is positive on $(-\infty, \frac{3}{2})$ and negative on $(\frac{3}{2}, \infty)$ so $g(t)$ is increasing on $(-\infty, \frac{3}{2})$ and

decreasing on $(\frac{3}{2}, \infty)$. And $g'(t) = 0$ when $t = \frac{3}{2}$, so g has a local extremum there of

$$\begin{aligned}g\left(\frac{3}{2}\right) &= -3\left(\frac{3}{2}\right)^2 + 9\left(\frac{3}{2}\right) + 5 \\&= -3\left(\frac{9}{4}\right) + \frac{27}{2} + 5 \\&= -\frac{27}{4} + \frac{27}{2} + 5 \\&= -\frac{27}{4} + \frac{54}{4} + \frac{20}{4} \\&= \frac{47}{4}.\end{aligned}$$

Since this extremum occurs where $g(t)$ changes from increasing to decreasing, it is a local maximum.

3. Consider the function $f(x) = (x+1)^2$, for $-\infty < x \leq 2$. Identify the function's local extreme values in the given domain and determine where they are assumed.

Solution. We have

$$\begin{aligned}f'(x) &= 0 \\2(x+1) &= 0 \\x+1 &= 0 \\x &= -1; \\f(-1) &= ((-1)+1)^2 \\&= 0;\end{aligned}$$

so f has a local extremum of 0 at $x = -1$. There are a few ways to tell that this extremum is a minimum, one of which is to notice that $f(x)$ is a positive quadratic. There is a second local extremum at $x = 2$:

$$\begin{aligned}f(2) &= ((2)+1)^2 \\&= 9.\end{aligned}$$

Since $f(x)$ is increasing up until $x = 2$, this must be a local maximum.

4. Consider the function $y = -x^3 + 6x^2$, for $-1 \leq x \leq 5$. Identify the function's local extreme values in the given domain and determine where they are assumed.

Solution. We have

$$\begin{aligned}y' &= 0 \\-3x^2 + 12x &= 0 \\x^2 - 4x &= 0 \\x(x - 4) &= 0 \\x &= 0, 4; \\y &= -(0)^3 + 6(0)^2, -(4)^3 + 6(4)^2 \\&= 0, 32;\end{aligned}$$

so this function has local extrema of 0 and 32 at $x = 0$ and $x = 4$, respectively. Since the function is a negative cubic, 0 must be a local minimum and 32 must be a local maximum. (To clarify this, graph y .) The endpoints -1 and 5 also give us local extrema:

$$\begin{aligned}f(-1) &= -(-1)^3 + 6(-1)^2 \\&= 7; \\f(5) &= -(5)^3 + 6(5)^2 \\&= 5^2(-5 + 6) \\&= 25.\end{aligned}$$

Since y is decreasing through both $x = -1$ and $x = 5$, both 7 and 25 are local maxima.

Worksheet 4.3.1

Calculus I

Mr. Simmons

1. Using the first and second derivatives, sketch a graph for $y = x^2 - 4x + 10$.
2. Using the first and second derivatives, sketch a graph for $y = 3x^3 - 4x^2 - 2$.
3. Using the first and second derivatives, sketch a graph for $y = x^4 - 4x^3 + 1$.
4. Using the first and second derivatives, sketch a graph for $y = \sin^2(x) + 1$.

Remote Learning Packet

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March 30 - April 3, 2020

Course: 11 Drama

Teacher(s): Ms. Jimenez margaret.cousino@greatheartsirving.org

Weekly Plan:

Monday, March 30

- Memorize lines 20 minutes - be sure to record your time!
- Backstage assignment

Tuesday, March 31

- Memorize lines 20 minutes
- Backstage assignment

Wednesday, April 1

- Memorize lines 20 minutes
- Backstage assignment

Thursday, April 2

- Memorize lines 20 minutes
- Backstage assignment

Friday, April 3

- Memorize lines 20 minutes
- Backstage assignment

Statement of Academic Honesty

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I affirm that, to the best of my knowledge, my child completed this work independently

Student Signature

Parent Signature

Monday, March 30

Practice lines for 20 minutes

Line memorizing strategies:

- Recite your lines out loud. Practice them like you will say them on stage – projecting, appropriate speed and emotion, etc. Ask yourself why your character is saying what he/she says and that will help you interpret how to say the line.
- Run your lines with a friend or family member. They should read the lines of the other characters in your scenes while you practice your lines from memory.
- Practice your lines in front of a mirror—the bigger the better! Watch yourself—your facial expressions, how you move, stand, etc.—to be aware of how you look while saying your lines.
- Record yourself saying your lines and listen to the audio (even better if you record your cues!)
- Write out your lines by hand (especially if you have a long speech, it is helpful to get it into your memory through writing it out multiple times).
- KNOW YOUR CUES! What line or action comes before you speak?
- Run through the parts of the scenes in which you do not speak—what is your character doing during those parts of the play?
- After spending a period of time going over your lines, take a walk or a nap 😊
- REMEMBER: Consistent practice is the key to success!

Backstage assignments:

(Forms are later in this document)

Sets - work on set sketches for Orsino's palace

Costumes - come up with ideas for 4 characters

Props - Go through Act 1 and write down all props needed

Production - start designing flyer (on computer or by hand)

Student director - read through 1/3 of the play; think about the development of each character

Props – Seth*, Kish, Isabela, Joseph, Ethan, Kinza

Sets – Shawn*, Martin, Qorban, Isaac, Nathan

Costumes – Mary*, Ellie, Isabela, Caroline

Hair/Make-up – Clara*, Sam, Isabela, Grace, Mary

Production – Grace*, Sam, Clara, Ethan

Student Director – Mary

Tuesday, March 31

- Practice lines
- **Backstage assignments:**

Sets - work on set sketches for inside Olivia's

Costumes - come up with ideas for 4 characters

Props - Go through Act 2 and write down all props needed

Production - work on flyer design (on computer or by hand)

Student director - read through the next 1/3 of the play; think about the development of each character

Wednesday, April 1

- Practice lines
- **Backstage assignments:**

Sets - work on set sketches for outside Olivia's

Costumes - come up with ideas for 4 characters

Props - Go through Act 3 and write down all props needed

Production - work on flyer design (on computer or by hand)

Student director - read through the last $\frac{1}{3}$ of the play; think about the development of each character

Thursday, April 2

- Practice lines
- **Backstage assignments:**

Sets - write down all set pieces we will need

Costumes - come up with ideas for 4 characters

Props - Go through Act 4 and write down all props needed

Production - work on poster design (on computer or by hand)

Student director - Start watching a film version of *Twelfth Night*

Friday, April 3

- Practice lines
- **Backstage assignments:**

Sets - wrap up sets assignments

Costumes - come up with ideas for 4 characters

Props - Go through Act 5 and write down all props needed

Production - work on poster design (on computer or by hand)

Student director - Finish watching a film version of *Twelfth Night*

Drama Weekly Line Memorization

Name:

Week: 3/30-4/5

| Day: | Minutes practiced: |
|------------------|---------------------------|
| Monday | |
| Tuesday | |
| Wednesday | |
| Thursday | |
| Friday | |
| Saturday | |
| Sunday | |

Minimum time: 20 mins/day, 5 days/week

I verify that this is a true and accurate account of the time I have spent memorizing my lines this past week.

Signature:

Date:

COSTUME FORM

ACTOR/CHARACTER(s):

| ITEMS: | ACTOR'S SIZES: |
|---------------|-----------------------|
| | Shoes: |
| | Shirt/dress: |
| | Pants/skirt: |
| | Height: |
| | Shoulders: |
| | Chest: |
| | Waist: |
| | Hips: |

COSTUME FORM

ACTOR/CHARACTER(s):

| ITEMS: | ACTOR'S SIZES: |
|---------------|-----------------------|
| | Shoes: |
| | Shirt/dress: |
| | Pants/skirt: |
| | Height: |
| | Shoulders: |
| | Chest: |
| | Waist: |
| | Hips: |

PROPS FORM

ACT/SCENE #:
LOCATION OF SCENE:

ACT/SCENE #:
LOCATION OF SCENE:

ACT/SCENE #:
LOCATION OF SCENE:

PROPS FOR SCENE:

PROPS FOR SCENE:

PROPS FOR SCENE:

| | | |
|--|--|--|
| | | |
|--|--|--|

SETS FORM

LOCATION OF SCENE:

ACTS/SCENES # (which take place here):

ITEMS:

LOCATION OF SCENE:

ACTS/SCENES # (which take place here):

ITEMS:

LOCATION OF SCENE:

ACTS/SCENES # (which take place here):

ITEMS:

Cast List

Viola - Kinza

Sebastian - Ellie

Captain - Shawn

Orsino - Kish

Curio - Shawn

Valentine - Grace

Olivia - Caroline

Maria - Samantha

Sir Toby - Joseph

Sir Andrew - Ethan

Clown - Qorban

Malvolio - Martin

Fabian - Isaac

Antonio - Seth

Priest - Nathan

Musicians - Clara & Isabela

Officers - Clara & Isabela

Sailors - Grace & Isaac

Servant - Grace

Attendants - Clara & Isabela

Remote Learning Packet

NB: Please keep all work produced this week. Details regarding how to turn in this work will be forthcoming.

March 30 - April 3, 2020

Course: 11 Greek I

Teacher(s): Miss Salinas annie.salinas@greatheartsirving.org

Supplemental Resources: see links on next page

Weekly Plan:

Monday, March 30

- Optional: explore options for Greek dictionary
- Finish Chapter 8 Study Guide

Tuesday, March 31

- Translate, label, and illustrate the vocab sections “Outdoors” and “In the house”.
- Decline “μαχομαι” as a middle-voice participle.

Wednesday, April 1

- Translate, label, and illustrate the vocab sections “At the farm” and “In the city”.
- Decline “έπομαι” as a middle-voice participle.

Thursday, April 2

- Translate, label, and illustrate the vocab section “People”.
- Decline “εὐχομαι” as a middle-voice participle.

Friday, April 3

- Translate, label, and illustrate the vocab sections “In the temple” and “Time of day”, and “Parts of the body”.
- Decline “δεχομαι” as a middle-voice participle.

Statement of Academic Honesty

I affirm that the work completed from the packet is mine and that I completed it independently.

I affirm that, to the best of my knowledge, my child completed this work independently

Student Signature

Parent Signature

Χαιρετε, φίλοι! I miss you all lots and hope you're resting well and not going too stir-crazy.

A note on supplemental resources: now that we are remote, you will likely find yourself desiring to make use of a Greek dictionary. If you have access to a computer, you may find this faster and more comprehensive than simply using the glossary in the back of our textbook. Unfortunately, online Greek dictionaries tend to be less user-friendly than Latin ones. (About a year's worth of extra credit and all the honor and glory of Classical Athens to any student who wants to write a program to create an ergonomic online Greek dictionary!) The one I use most is [Wiktionary](#)¹. It's wonderful and provides a plethora of information - the catch is that to access Greek words, you need to type them in Greek. You can do this by either 1) copying and pasting them or 2) using a Greek keyboard on your computer. It's cumbersome, but you can use [this link](#)² to "type" Greek words and then copy and paste them into the search box. The alternative is to activate the Greek keyboard on your computer, which you may wish to do with your parents' permission. Here are instructions on [how to do so on a Mac](#)³, and here are instructions on [how to do so on a PC](#)⁴. (Since I don't have a PC, I can't test those last ones out to see if they work - if they don't, let me know.)

Alternatively, you can also use another online dictionary that doesn't require Greek characters, for instance the commonly-used [Perseus-Tufts Dictionary](#)⁵, but it's pretty much the opposite of user-friendly and you have to bribe it with six silver coins and a drop of blood from a Cyclops' finger to get it to give you a straightforward answer. There's also the [Woodhouse Dictionary](#)⁶, which is an English-to-Greek searchable pdf of a published dictionary.

All of y'all are free to email me directly anytime with questions, clarifications, grammatical protestations, cool Greek things you found in the wild, etc., but please do me a favor and copy your parent(s) on emails you send me to stay within our school and state guidelines. Gratias vobis ago!...wait, wrong language. Εὐ ποιετε!

- Miss Salinas

P.S. All resources are included above as hyperlinks, and below in the footnotes as written-out URLs, so no matter whether you're reading this as a pdf on a screen or a printed packet, you should be able to find the resources! Let me know if you have any trouble. Best of luck, you guys!

¹ https://en.wiktionary.org/wiki/Wiktionary:Main_Page

² https://www.lexilogos.com/keyboard/greek_ancient.htm

³ <https://ancientgreek.pressbooks.com/app/uploads/sites/48881/2017/08/Polytonic-Greek-on-Macintosh.pdf>

⁴ https://en.wikiversity.org/wiki/Enabling_Greek_Characters_on_Your_Keyboard

⁵ <http://www.perseus.tufts.edu/hopper/resolveform?redirect=true>

⁶ <https://www.lib.uchicago.edu/efts/Woodhouse/>

Monday, March 30

If you have or plan to have access to a computer while working remotely, read my “note on supplemental resources” on the previous page, explore the resources listed, and if you’d like the ability to use a Greek keyboard, inquire with your parents whether that will be possible.

Complete the remainder of your Chapter 8 Study Guide from the week before Spring Break. I’m not attaching it here because it’s 8 pages long and I believe everyone got a copy, but if yours has gotten lost in the shuffle, shoot me an email and I’ll send it over again.

Q: When are we taking the Chapter 8 Test?

A: We’re not sure yet! The admin are working out the kinks with remote testing as we speak, and we’ll begin that as soon as we can.

Tuesday, March 31

It’s vocab review week! In the following days, you’ll illustrate the Comprehensive Vocab List: Nouns one section at a time. As you do so, I want you to translate and identify the gender and declension of each word. As a reminder, I’ve written the identifying factors below:

Masculine: articles are δ , $\tau\omicron\upsilon$

Feminine: articles are η , $\tau\eta\varsigma$

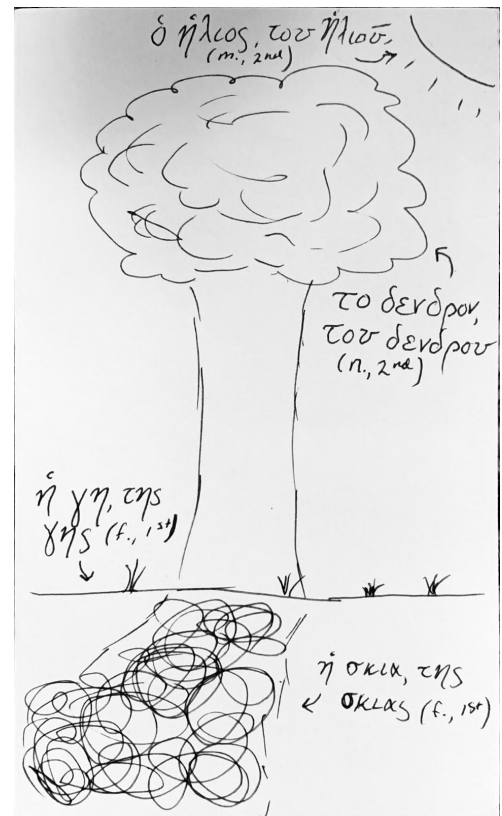
Neuter: articles are $\tau\omicron$, $\tau\omicron\upsilon$

1st decl: gen ending is $-\eta\varsigma$

2nd decl: gen ending is $-\omicron\upsilon$

3rd decl: gen ending is $-\omicron\varsigma$

Once you’ve translated and identified all the relevant information, get a blank sheet of paper. then illustrate the sections “**Outdoors**” and “**In the house**”. See my example to the right or the image on the next page (from DK’s “Italian-English Visual Bilingual Dictionary”) for ideas: you can draw a scene and insert and label the items, or simply draw and label them one at a time. Don’t worry if your drawings are stick-figure quality...clearly, mine are too. Simply make them clear enough to distinguish the meaning of the word in concordance with the image. Include all the information I’ve included in my own example: **image, Greek word in both nom. and gen., gender, and declension.**





Once you've finished, find the declension exercises below and complete the one for Tuesday.

Wednesday, April 1

Vocab: Do the same as yesterday, but for the vocab sections "at the farm" and "in the city".

Once you've finished, find the declension exercises below and complete the one for Wednesday.

Thursday, April 2

Vocab: Repeat the same exercise for the section "People".

Once you've finished, find the declension exercises below and complete the one for Thursday.

Friday, April 3

Vocab: Repeat the same exercise for "In the temple", "Time of day", and "Parts of the body".

Once you've finished, find the declension exercises below and complete the one for Friday.

Declension exercises

Tuesday

Decline the middle-voice participle for the verb “μαχομαι”, “I fight”.

| | sg | | |
|-----|-----------|----------|-----------|
| | m | f | n |
| nom | μαχομενος | μαχομενη | μαχομενον |
| gen | | | |
| dat | | | |
| acc | | | |

| | pl | | |
|--|----|---|---|
| | m | f | n |
| | | | |
| | | | |
| | | | |
| | | | |

Treating it as a substantive adjective, translate the dative masculine singular.

Wednesday

Decline the middle-voice participle for the verb “έπομαι”, “I follow”.

| | sg | | |
|-----|----------|---|---|
| | m | f | n |
| nom | έπομενος | | |
| gen | | | |
| dat | | | |
| acc | | | |

| | pl | | |
|--|----|---|---|
| | m | f | n |
| | | | |
| | | | |
| | | | |
| | | | |

Treating it as a substantive adjective, translate the nominative feminine singular.

Thursday

Decline the middle-voice participle for the verb “εὐχομαι”, “I pray”.

| | sg | | | pl | | |
|-----|----|----------|---|----|---|---|
| | m | f | n | m | f | n |
| nom | | εὐχομενη | | | | |
| gen | | | | | | |
| dat | | | | | | |
| acc | | | | | | |

Treating it as a substantive adjective, translate the accusative feminine plural.

Friday

Decline the middle-voice participle for the verb “δεχομαι”, “I receive”.

| | sg | | | pl | | |
|-----|----|---|-----------|----|---|---|
| | m | f | n | m | f | n |
| nom | | | δεχομενον | | | |
| gen | | | | | | |
| dat | | | | | | |
| acc | | | | | | |

Treating it as a substantive adjective, translate the genitive neuter singular.

Comprehensive vocab list: nouns, Chapters 1-9

Translate as many of these as you can from memory. When you've done all you can remember, you will find pgs. 39-42 and 81-83 of your workbook to be an excellent resource. Don't forget to do the following for each word: identify the gender, identify the declension, and translate.

Outdoors

το δένδρον, του δένδρου
ὁ ἥλιος, του ἡλίου
ὁ λαγῶς, του λαγῶ
ὁ λίθος, του λίθου
ὁ λύκος, του λύκου
ὁ βους, του βοῦς
ἡ μελιττα, της μελιττης
ὁ κυων, του κυνος
ἡ ὁδος, της ὁδοῦ
το ὄρος, του ὄρους
ἡ σκία, της σκιάς
ἡ γη, της γῆς
ἡ νησος, της νησου
ἡ θαλαττα, της θαλαττης
ὁ οὐρανός, του οὐρανοῦ
ὁ χειμῶν, του χειμῶνος

In the house

ἡ οἰκία, της οἰκίας
το δειπνον, του δειπνου
ἡ ὕδρια, της ὕδριας
ὁ μυθος, του μυθου
ἡ μαχαιρα, της μαχαιρας
ἡ θυρα, της θυρας

At the farm

ὁ κληρος, του κληρου
ὁ ἄργος, του ἄργου
το ἄροτρον, του ἄροτροῦ
ὁ σιτος, του σιτου
ὁ αὐτουργος, του αὐτουργου
ὁ πονος, του πονου
ὁ οἶκος, του οἴκου
τα προβατα, των προβατων
ὁ αἶξ, του αἴγος / ἡ αἶξ, της αἴγος

In the city

ἡ ἀγορα, της ἀγορας
ἡ ἐορτη, της ἐορτης
ὁ χορος, του χορου
αἱ πυλαι, των πυλων
ἡ πομπη, της πομπης
ἡ πολις, της πολεως
το ἄστυ, του ἄστεως
ἡ ναυς, της νεως

People

ὁ πατηρ, του πατρος
ἡ μητηρ, της μητρος
ἡ θυγατηρ, της θυγατρος
ὁ υἱος, του υἱου
ὁ ἀνθρωπος, του ἀνθρωπου
ἡ κορη, της κορης
ἡ παρθενος, της παρθενου
ὁ παις, του παιδος
ἡ παις, της παιδος
ὁ νεανιας, του νεανιου
ὁ γερων, του γεροντος
ὁ ἀνηρ, του ἀνδρος
ἡ γυνη, της γυναικος
ὁ παππος, του παππου
ὁ παππας, του παππου
ὁ φιλος, του φιλου
ἡ φιλη, της φιλης
ὁ δεσποτης, του δεσποτου
ὁ δουλος, του δουλου
ὁ πολιτης, του πολιτου
ὁ ἀγγελος, του ἀγγελου
ὁ ποιητης, του ποιητου
ὁ ἑταιρος, του ἑταιρου
ὁ ξενος, του ξενου
ὁ βασιλευς, του βασιλεως
ὁ κηρυξ, του κηρυκος

In the temple (note: many of these are Ch. 9 words, and thus we have not yet used them.)

ὁ βωμος, του βωμου
ὁ θεος, του θεου
ἡ θεος, της θεου / ἡ θεα, της θεας
το ἱερειον, του ἱερειου
το ἱερον, του ἱερου
ὁ ἱερευς, του ἱερεως

Time of day

ὁ καιρος, του καιρου
ἡ ἡμερα, της ἡμερας
ἡ ἑσπερα, της ἑσπερας
ἡ νυξ, της νυκτος

Parts of the body/person

ὁ ὀφθαλμος, του ὀφθαλμου
ἡ χειρ, της χειρος
ἡ ἀριστερα, της ἀριστερας
ἡ δεξια, της δεξιας
το ὄνομα, του ὀνοματος

Remote Learning Packet

NB: Please keep all work produced this week. Details regarding how to turn in this work will be forthcoming.

March 30 - April 3, 2020

Course: 11 Humane Letters

Teacher(s): Mr. Brandolini david.brandolini@greatheartsirving.org

Mr. Mercer andrew.mercer@greatheartsirving.org

Weekly Plan:

Monday, March 30

- Supplemental material: <http://www.classics.upenn.edu/myth/php/tragedy/index.php?page=atreus>
- Read and annotate Aeschylus, *Agamemnon*, lines 1-358 (p. 103-116 of the Penguin Classics edition)
- Answer reading questions

Tuesday, March 31

- Read and annotate *Agamemnon*, lines 359-976 (p. 117-141).
- Answer reading questions

Wednesday, April 1

- Read and annotate *Agamemnon*, lines 977-1355 (p. 141-158).
- Answer reading questions

Thursday, April 2

- Read and annotate *Agamemnon*, lines 1355-1708 (p. 158-172)
- Answer reading questions

Friday, April 3

- Read the update on Junior Final Panel Project due dates
- Compose a one-page reflective analysis on Aeschylus' *Agamemnon*

Statement of Academic Honesty

I affirm that the work completed from the packet is mine and that I completed it independently.

I affirm that, to the best of my knowledge, my child completed this work independently

Student Signature

Parent Signature

Monday, March 30

1. *If possible*, it is recommended that you briefly peruse the supplemental link included on the cover page of the packet. It provides a brief overview of the history of the House of Atreus and the curse placed upon it, as well as a family tree. While Aeschylus' trilogy and its themes stand tall on their own terms, knowledge of the lineage would have been common in his time and can greatly assist in following the various references found in the plays. One critical component to remember that is not listed in the link is Agamemnon's sacrifice of his daughter Iphigenia to appease Artemis when departing for Troy.
2. Read and annotate Aeschylus, *Agamemnon*, lines 1-358 (p. 103-116 of the Penguin Classics edition). Read carefully and watch for allusions to the events of the Trojan war; it would also be edifying to keep an eye out for similarities and differences to the story of Agamemnon's fate that we were given in Homer's *Odyssey* (particularly Books IV and XI).
 - For the purposes of this packet, subsequent days will contain minimal explicit instruction. Generally speaking for this week, engaging with the work will be primarily on an individual basis, although the daily reading questions have been designed to help provide some level of direction as to where to focus while revisiting passages.
 - Throughout the trilogy, some of the themes to pay close attention to while annotating are
 - fate/destiny and human action/responsibility
 - motherhood
 - revenge vs justice; especially, justices' relationship with law and war
 - blood and sacrifice
 - the son suffering the consequence of the father's sins
 - night vs. dawn/the sun

While this list is by no means exhaustive, keeping an eye out for such themes and references will help in tracking the development of the works; the Chorus especially serves as a critical component in establishing ideas and setting new scenes.

3. Complete the reading question worksheet for this day. **Please note that if you are unable to print any of the worksheets and need to draft answers on loose leaf, you should include a full header and copy the worksheet title on your own paper.**

Tuesday, March 31

1. Read and annotate *Agamemnon*, lines 359-976 (p. 117-141). We see a great deal of reflection on the Trojan War and its causes, and the seemingly endless cycle of violence and destruction; the return of Agamemnon and his tense interaction with Clytaemnestra. Pay especial care to lines such as 370-395, 683-765, 830-840, 900-976.
2. Complete the reading question worksheet for this day.

Wednesday, April 1

1. Read and annotate *Agamemnon*, lines 977-1355 (p. 141-158). The Chorus gripped with dread; introduction to Cassandra; her prophecies. Pay attention to lines 992-1030, 1070-1099, 1180-1195, 1295-1320. Note the dramatic irony of Cassandra's prophecies going ignored. The tension between human knowledge/will and fate is highlighted here more than ever.
2. Complete the reading question worksheet for this day.

Thursday, April 2

1. Read and annotate *Agamemnon*, lines 1355-1708 (p. 158-172). At last comes the climax to the play and the inciting incident of the trilogy. Pay very close attention to the characters' accounts of the past and the lineage of the House of Atreus; these accounts are how they justify their actions and continue to flesh out the intricately woven thematic elements. As we turn to the next part of the trilogy, we are left to consider questions such as
 - "Is this all there is to justice?"
 - "What is the nature of the problem/sickness within Argos itself? Has Clytaemnestra put an end to that curse and provided a cure, or is she merely part of the problem?"
 - "How can man hope to begin to fix things if he is fated to spiral into vice and violence?"
2. Complete the reading question worksheet for this day.

Friday, April 3

1. *Junior Project*:
 - Due to the extenuating circumstances, we have adjusted the scope and schedule of the Junior Project for this year. The panel portion has been canceled, and all due dates have been moved back by two weeks. This means that the first draft of the essay is now due **Friday, April 17**, and the final draft is due **Friday, May 22**. The required length of the essay has also been adjusted from 8 pages to a range of 5-8 pages.
 - Just as with the work for this packet, we will send details regarding submitting the essays and receiving feedback in the coming days.
2. *Agamemnon* analytic reflection: in a thoughtful one-page reflection of at least 2 paragraphs, explore how *Agamemnon* as a whole portrays the nature of Justice in the play's moment in time. You should use three distinct instances of a character (it can be one or several characters) either reflecting upon justice or claiming to act in the name of justice.

Monday: 11th Grade Humane Letters *Agamemnon* lines 1-358 Reading Questions

Answer in complete sentences.

1. In the opening scene, what is the pain that the watchman speaks of that seems to be both his own and that of the people of Argos?

2. Describe the meaning or significance of the refrain of the Chorus: “Cry, cry for death, but good win out in glory in the end.”

3. How does Clytaemnestra initially respond to the news that Troy had fallen?

Tuesday: 11th Grade Humane Letters *Agamemnon* lines 359-976 Reading Questions

Answer in complete sentences.

1. The Herald emphasizes that the soldiers have suffered orders and magnitudes more than citizens back home. What are some reasons he gives for saying this? Why emphasize this at all, do you think?

2. Midway through the reading, the Chorus reflects on the constant lineage and breeding of impiety and vice within humanity. What does the Chorus say is the cause of this vicious lineage? Does there appear to be any account for hope or redemption?

3. In general, how is Agamemnon portrayed in this passage? How does he react to Clytaemnestra's flattery, and why?

4. Briefly describe/examine how one of the major themes is developed or established in this passage.

Wednesday: 11th Grade Humane Letters *Agamemnon* lines 977-1355 Reading Questions

Answer in complete sentences.

1. The passage begins with the Chorus fearing the approach and “birth” of Justice--justice for whom? Why might this be cause for terror and dread?

2. Who is Cassandra? Who gave her the power of prophecy? Whose fate(s) does she foretell?

3. In light of the aforementioned fate(s), who does Cassandra say will come to bring vengeance? How does she choose to react to the things she foresees (both here and in question 2)?

4. Briefly describe/examine how one of the major themes is developed or established in this passage.

Remote Learning Packet

NB: Please keep all work produced this week. Details regarding how to turn in this work will be forthcoming.

March 30 - April 3, 2020

Course: 11 Physics

Teacher: Miss Weisse natalie.weisse@greatheartsirving.org

Resource: 11.Physics.TextbookPacket.033020 — *This is NOT the Giancoli Textbook!* I have written notes for you.

Weekly Plan Checklist:

Monday, March 30

- Read & Understand Notes on Momentum
- Complete Unit 8 Worksheet 0A Problems
- Email Miss Weisse with Questions!

Tuesday, March 31

- Read & Understand Notes on Impulse
- Complete Unit 8 Worksheet 0B Problems
- Email Miss Weisse with Questions!

Wednesday, April 1

- Review Notes From Monday and Tuesday
- Complete Unit 8 Worksheet 1 Problems
- Email Miss Weisse with Questions!

Thursday, April 2

- Read & Understand Notes on Momentum, Impulse, & Everything We Know About Motion of Objects
- Complete Unit 8 Worksheet 2 Problems
- Email Miss Weisse with Questions!

Friday, April 3

- Reread all notes from this week
- Review and re-attempt all problems assigned this week that you missed the first time
- Complete Unit 8 Quiz 1 (see note below)

Statement of Academic Honesty

I affirm that the work completed from the packet is mine and that I completed it independently.

I affirm that, to the best of my knowledge, my child completed this work independently

Student Signature

Parent Signature

DAILY PLANS

Monday, March 30

→ Read Pages 2-7 of the Textbook Packet that accompanied the lesson plans

→ Complete the following problems on a sheet of paper with a full heading — Unit 8 Worksheet 0A

1. A particle has a mass of 10 kg and a velocity of 5 m/s. What is the momentum of the particle? Please write your answer twice, once with each possible unit of momentum.
2. If a 6.0 kg bowling ball is rolled with a velocity of 3.5 m/s, what is the momentum of the ball?
3. Which has more momentum, a 3.0 kg mass moving at 9.0 m/s or a 5.0 kg mass moving at 5.0 m/s?
4. A bicycle has a momentum of 25.00 kg·m/s and a velocity of 2.5 m/s. What is the bicycle's mass?
5. What is the velocity of a 0.5 kg ball that has a momentum of 3.00 kg·m/s?
6. A bicycle has a momentum of 24 kg·m/s. What momentum would the bicycle have if it had ...
 - a. ... twice the mass and was moving at the same speed?
 - b. ... the same mass and was moving with twice the speed?
 - c. ... three times the mass and was moving with one-half the speed?
 - d. ... three times the mass and was moving with twice the speed

Tuesday, March 31

→ Read Pages 8-13 of the textbook Packet that accompanied the lesson plans

→ Complete the following problems on a sheet of paper with a full heading — Unit 8 Worksheet 0B

1. A constant force of 50 N is applied to a 20kg block for 10 seconds.
 - a. What is the impulse acting on the block?
 - b. What is the change in the momentum of the block?
 - c. What is the final speed of the block if it was originally at rest?
 - d. What is the final speed of the block if it was originally moving at 15 m/s?
2. A 0.20 kg ball was struck by a baseball bat from rest up to a speed of 35 m/s. The ball was in contact with the bat for 0.02 seconds.
 - a. What is the change in momentum of the ball?
 - b. What was the impulse exerted on the ball?
 - c. Calculate the average force exerted on the ball by the bat.

Wednesday, April 1

→ Review Notes From Monday and Tuesday

→ Complete the following problems on a sheet of paper with a full heading — Unit 8 Worksheet 1

1. The following questions refer to the motion of a baseball.
 - a. While being thrown, a net force of 132 N acts on a baseball (mass = 140 g) for a period of 4.5×10^{-2} sec. What is the magnitude of the change in momentum of the ball?
 - b. If the initial speed of the baseball is $v = 0.0$ m/s, what will its speed be when it leaves the pitcher's hand?
 - c. When the batter hits the ball, a net force of 1150 N, opposite to the direction of the ball's initial motion, acts on the ball for 9.0×10^{-3} s during the hit. What is the final velocity of the ball?
2. If you throw a ball horizontally while standing on roller skates, you roll backwards. Will you roll backwards if you go through the motions of throwing the ball, but hold on to it instead? Explain your reasoning.
3. Which has the greater change in momentum, a 50 gram clay ball that strikes a wall at 1 m/s and sticks or a 50 gram superball that strikes a wall at 1 m/s and bounces away from the wall at 0.8 m/s? Explain your reasoning.
4. Discuss the following in terms of impulse and momentum:
 - a. Why are padded dashboards safer than hard dashboards in automobiles?
 - b. Why are nylon ropes, which stretch considerably under stress, favored by mountain climbers?
 - c. When starting a heavy train, why will train engineers sometimes back up, stop, and then proceed forward? (This technique is called "bunching slack.")

(Thursday & Friday Assignments on Next Page)

Thursday, April 2

- Read Pages 14-19 of the textbook Packet that accompanied the lesson plans
 - Complete the following problems on a sheet of paper with a full heading — Unit 8 Worksheet 0B
1. A large SUV and a zippy convertible traveling at equal speeds have a head-on collision.
 - a. Which vehicle will experience the greater force of impact? Justify your answer.
 - b. Which vehicle will experience the greater change in momentum? Justify your answer.
 - c. Which vehicle will experience the greater acceleration? Justify your answer.
 2. A rocket, weighing $4.36 \times 10^4 \text{N}$, has an engine that provides an upward force of $1.2 \times 10^5 \text{N}$. It reaches a maximum speed of 860 m/s.
 - a. Draw a force diagram for the rocket.
 - b. For how much time must the engine burn during the launch in order to reach this speed?
 - c. What is the impulse of the rocket?
 3. A golf ball that weighs 0.45 N is dropped from a height of 1.0 m. Assume that the golf ball has a perfectly elastic collision with the floor.
 - a. Construct a motion map for the golf ball from the time it is dropped until it reaches its highest point of rebound.
 - b. Determine the time required for the ball to reach the floor.
 - c. What will the instantaneous momentum of the golf ball be immediately *before* it strikes the floor?
 - d. What will be the change in momentum, (Δp) from the instant before the ball collides with the floor until the instant after it rebounds from the floor? (Illustrate with a vector diagram.)
 - e. Suppose that the golf ball was in contact with the floor for $4.0 \times 10^{-4} \text{s}$. What was the average force on the ball while it was in contact with the floor?

Friday, April 3

- Review Notes From Monday, Tuesday, and Thursday
 - Complete the following problems on a sheet of paper with a full heading — Unit 8 QUIZ 1
 - ◆ Who knows if this will be graded like a quiz, but, treat it like a quiz! Review problems you've done this week, then, when you're ready, put them away and attempt these problems.
1. Calculate the momentum of a 1000 kg sports car traveling at 30.0 m/s.
 2. Determine the impulse needed to increase the car's speed from 30.0 m/s to 35 m/s.
 3. In a sad turn of events, the same sports car, formerly traveling at 35 m/s, plows into a rock wall and comes to rest in 0.25 seconds. Determine the size of the force the rock wall exerts on the car.
 4. How does the size of the force the rock wall exerts on the car compare to the force the car exerts on the rock wall? Briefly explain. Which of Newton's laws of motion applies to your answer?

Remote Learning Packet

NB: Please keep all work produced this week. Details regarding how to turn in this work will be forthcoming.

March 30 - April 3, 2020

Course: 11 Precalculus

Teacher: Mr. Simmons michael.simmons@greatheartsirving.org

Weekly Plan:

Monday, March 30

“Exponential and Logarithmic Models II” worksheet answer key

Tuesday, March 31

Read about logistic growth models and work example problems

Wednesday, April 1

Read “Choosing an Appropriate Model for Data” and work example problems

Thursday, April 2

Read “Expressing an Exponential Model in Base e ” and work example problems

Friday, April 3

Problem set 4.7: 6-12

Statement of Academic Honesty

I affirm that the work completed from the packet is mine and that I completed it independently.

I affirm that, to the best of my knowledge, my child completed this work independently

Student Signature

Parent Signature

Monday, March 30

Dearest students, hello! I hope you've enjoyed your leisure over the past two weeks. While I am heartbroken that I can't be with you in person to guide you through the wonderful beauties of mathematics over these next few weeks, I see some good coming from the circumstances, as each of you will be challenged - and surely will rise to meet the challenge - to engage in mathematical inquiry in a more independent way. The frustrations you will feel in your isolated struggle for mathematical understanding, no matter your success, will doubtless sow seeds of true mathematical thought - and winter always ends in a fruitful spring. The essentially collaborative nature of our class has unfortunately (though necessarily) been temporarily suspended, so take courage as you embark on this lonely adventure, and look forward to our reunion in good time. Have fortitude, and I look forward to seeing you all again.

In the meantime, your individual adventures in math will be guided by written instructions contained in packets like this one. Your first instruction is simply to read through, in detail, the answer key to the "Exponential and Logarithmic Models II" worksheet that you already completed. If you haven't already completed it, do that first.

Tuesday, March 31

Read, on pages 407-409 of the textbook, the section about logistic growth. Complete the example problem and the "try it" problem.

Wednesday, April 1

Check your answer to the "try it" problem in the back of the book.

Read, on pages 409-411, the section on "choosing an appropriate model for data," and complete the example problem and the "try it" problem.

Thursday, April 2

Check your answer to the "try it" problem in the back of the book.

Read, on pages 411-412, the section on "Expressing an Exponential Model in Base e ," and complete the example and "try it" problems.

Friday, April 3

Check your answer to the "try it" problem in the back of the book.

Complete the problem set 4.7: 6-12.

Exponential and Logarithmic Models II

Mr. Simmons
Precalculus

Newton's Law of Cooling (which you derived in the previous worksheet) states that the temperature of an object, T , in surrounding air with temperature T_s , will behave according to the formula

$$T(t) = Ae^{kt} + T_s,$$

where

- t is time,
- A is the difference between the initial temperature of the object and the surroundings, and
- k is a constant, the continuous rate of cooling of the object.

Use Newton's Law of Cooling to answer the following questions:

1. A cheesecake is taken out of the oven with an ideal internal temperature of 165°F , and is placed into a 35°F refrigerator. After 10 minutes, the cheesecake has cooled to 150°F . If we must wait until the cheesecake has cooled to 70°F before we eat it, how long will we have to wait?

2. A pitcher of water at 40 degrees Fahrenheit is placed into a 70 degree room. One hour later, the temperature has risen to 45 degrees. How long will it take for the temperature to rise to 60 degrees?

Exponential and Logarithmic Models II

Mr. Simmons

Precalculus

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Solution. Plugging in known values and solving for k , we get

$$150 = (165 - 35)e^{k(10)} + 35$$

$$115 = 130e^{10k}$$

$$\frac{23}{26} = e^{10k}$$

$$10k = \ln\left(\frac{23}{26}\right)$$

$$k = \frac{\ln\left(\frac{23}{26}\right)}{10}.$$

So

$$T(t) = 130e^{\frac{\ln\left(\frac{23}{26}\right)}{10}t} + 35.$$

We want to know what t will be when $T(t)$ is 70, so we plug in this known point and solve

for t :

$$70 = 130e^{\frac{\ln(\frac{23}{26})}{10}t} + 35$$

$$35 = 130e^{\frac{\ln(\frac{23}{26})}{10}t}$$

$$\frac{7}{26} = e^{\frac{\ln(\frac{23}{26})}{10}t}$$

$$\frac{\ln(\frac{23}{26})}{10}t = \ln\left(\frac{7}{26}\right)$$

$$t = 10 \frac{\ln\left(\frac{7}{26}\right)}{\ln\left(\frac{23}{26}\right)}$$

$$\approx 107.$$

So we need to wait about 107 minutes, or 1 hour and 47 minutes.

2. A pitcher of water at 40 degrees Fahrenheit is placed into a 70 degree room. One hour later, the temperature has risen to 45 degrees. How long will it take for the temperature to rise to 60 degrees?

Solution. Plugging in known values and solving for unknown values, we have

$$\begin{aligned}T(t) &= Ae^{kt} \\(45) &= (40 - 70)e^{k(1)} + 70 \\-25 &= -30e^k \\ \frac{5}{6} &= e^k \\ k &= \ln\left(\frac{5}{6}\right); \\60 &= -30e^{\ln(\frac{5}{6})t} + 70 \\-10 &= -30e^{\ln(\frac{5}{6})t} \\ \frac{1}{3} &= e^{\ln(\frac{5}{6})t} \\ \ln\left(\frac{5}{6}\right)t &= \ln\left(\frac{1}{3}\right) \\ t &= \frac{\ln\left(\frac{1}{3}\right)}{\ln\left(\frac{5}{6}\right)} \\ &\approx 6.03;\end{aligned}$$

so it will take about 6.03 hours for the pitcher to warm to 60 degrees.

Remote Learning Packet

NB: Please keep all work produced this week. Details regarding how to turn in this work will be forthcoming.

March 30 - April 3, 2020

Course: 11 Spanish III

Teacher(s): Ms. Barrera anna.barrera@greatheartsirving.org

Supplemental links: www.spanishdict.com
www.conjugemos.com

Weekly Plan:

Monday, March 30

- Como te llevas con los demas? Planning a Quinceanera.
- Reading and translating

Tuesday, March 31

- Como te llevas con los demas? Expressing personal opinions with supporting statements.
- Know when to use the indicative vs. the subjunctive

Wednesday, April 1

- Como te llevas con los demas? Writing complex sentences using present tense and past tenses.
- Writing complex sentences.

Thursday, April 2

- Como te llevas con los demas? Writing complex sentences using present tense and past tenses.
- Explaining when to use the indicative vs. subjunctive and why.

Friday, April 3

- Como te llevas con los demas? Read and write about conflicts and solutions.
- Discuss relationships, problems and reactions.

Statement of Academic Honesty

I affirm that the work completed from the packet is mine and that I completed it independently.

I affirm that, to the best of my knowledge, my child completed this work independently

Student Signature

Parent Signature

Monday, March 30 Write all assignments on a loose -leaf paper to be turned in

Chapter 4 - Part II: Como te llevas con los demas? Planning a Quinceanera.

1. Textbook page 166 - *La quinceanera*: Translate the conversation between Emilia and Lola
2. Textbook page 168 - *Comentarios sobre la fiesta*: Translate the conversation between Emilia and Victoria which conversation is on the top of the page.
3. Textbook page 170 - Activity 5 *Una carta para alguien que fue mi amigo*. Write the correct trigger word for the subjunctive sentence. Make sure you write the entire sentence.
4. Activity 5: Now that you have the correct spanish subjunctive sentence, please translate all eight sentences.

Tuesday, March 31

Chapter 4 - Part II: Como te llevas con los demas? Expressing personal opinions with supporting statements.

1. Textbook page 171 - Activity 7 *Amistad y cualidades*, write a verb or an expression that relates with each of the characteristics.
2. Textbook page 171 - *Familias de palabras* - fill in the chart with the correct adjective or verb. Then write the three sentences and fill in the appropriate vocabulary.
3. Textbook page 173 - *El Dia de la Rosa y del Libro*, translate the article then answer the question that is next to Pre-AP Integration in Spanish. Complete sentences please.

Wednesday, April 1

Chapter 4 - Part II: Como te llevas con los demas? Writing complex sentences using present tense and past tenses.

1. Textbook page 173 - *Retrato de una amistad* - Write an 8 sentence paragraph about an important relationship for you. It can be about your siblings, mother, father or friend. Remember to use the present tense to describe the relationship and past tenses to tell about its history and how it developed.
2. Textbook page 173 - *Un personaje* - Write another 8 sentence paragraph this time about a character from a book that you have read in school. Include his or her characteristics, how he or she treats other persons and examples of his or her actions.

Thursday, April 2

Chapter 4 - Part II: Como te llevas con los demas? Writing complex sentences using present tense and past tenses.

1. Textbook page 174 - Read the following sentences and underline the present tense verb, double underline a verb used as an infinitive and circle the present subjunctive sentence. Some might not have all three.
 1. Temo que Luis vaya solo a la fiesta.
 2. Me preocupa que Carmen todavia no este (second *e* has an accent) en su casa.
 3. Espero alegrar a Renata con el regalo.
 4. Siento no poder ir al cine con tus amigos.
 5. Ojala (accent over the last a) que me acepten tal como soy.

II. Using the same sentences as above, explain 1 to 5 why the infinitive was used, the indicative or the subjunctive.

Remember that subjunctive sentences have two subjects and two verbs. _____ que _____.

Friday, April 3

Chapter 4 - Part II: Como te llevas con los demas? Read and write about conflicts and solutions.

1. Textbook page 184 *Vocabulario en uso 2* - Activity 25 Complete the sentence with the appropriate word. Write the entire sentences.

2. Textbook page 184 Same Activity 25 - Now translate to English all five sentences.

3. Textbook page 185 Activity 26 - Mas consejos, por favor! Write the entire paragraph with the appropriate word from the word bank.

4. Textbook page 185 - Next, write to the person that wrote the chat giving him advice about what he needs to do.

5. Textbook page 185 - Translate Activity 26 from Spanish to English.