

**11th Grade
Lesson Plan
Packet**

5/18/2020-5/22/2020

Remote Learning Packet

Please submit scans of written work in Google Classroom at the end of the week.

May 18-22, 2020

Course: Art

Teacher(s): Ms. Clare Frank

Weekly Plan:

Monday, May 18

- Watch the instructional video “Texture and Contrast”
- Write a short paragraph about a strength and an area for growth in your drawing, and conclude by listing two specific aspects you plan to work on as you finish it.
- Drawing “View through a Window”: focusing on craftsmanship and compositional unity.

Tuesday, May 19

- Watch the instructional video “Movement and Balance”
- Last day of drawing “View through a Window”: finishing touches.
- Write a paragraph about your drawing project, in which you describe the subject and mood.

Wednesday, May 20

- Watch the instructional video “Fantastical Staircases”
- Using a full sketchbook page, begin a drawing with blocks and staircases in two-point perspective.

Thursday, May 21

- Optional: Watch the instructional video “Blocks, Ground Planes, Staircases”
- Continue developing your fantastical staircase drawing.

Friday, May 22

- attend office hours
- catch-up or review the week’s work

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, May 18

1. Watch the instructional video “Texture and Contrast” for Monday, May 18.
2. Write a short paragraph about a strength and an area for growth in your drawing, and conclude by listing two specific aspects you plan to work on as you finish the drawing today and tomorrow.
3. Continue working on your drawing project “View through a Window”, with an eye to finishing tomorrow. As you work, keep the following in mind:
 - a. The objectives you laid out for yourself in your paragraph.
 - b. The craftsmanship and media manipulation; the surface quality, attention to edges of shapes or areas, and transitions in value or color.
 - c. Compositional unity: that the parts of the drawing seem unified and balanced.

Tuesday, May 19

1. Watch the instructional video “Movement and Balance” for Tuesday, May 19.
2. Continue working on your drawing project “View through a Window, putting the finishing touches on your drawing. In judging how best to use your time, consider the following:
 - a. How does the viewer’s eye move through the piece?
 - i. What are the visual entrances into and exits out from the picture plane?
 - ii. What effects those entrances / exits? Leading lines? Areas of contrast? Narrative components, like figures or stands-in for figures? (ex: a bird, a shovel...)
 - iii. What draws your eye from one part to another within the image?
 - b. How is visual weight balanced in this piece?
 - i. Is gravity used, with visually heavy components lower in the picture plane?
 - ii. Are emphasis points arranged in the picture plane to create a stabilizing or energizing structure?
 - c. Are there some areas of value or color that need more variety or transitions?
 - d. Are there any areas that need to be enhanced, to give greater emphasis, contrast, definition, balance, or resolution?
3. Write a paragraph about your drawing project, in which you describe the subject and mood. What do you want your viewer to take away from your drawing, whether in narrative, mood, or atmosphere?

Wednesday, May 20

1. Watch the instructional video “Fantastical Staircases” for Wednesday, May 20.
2. Today you will start an architectural drawing which you will continue next week, “Fantastical Staircases”. You will need a pencil and eraser, a full sketchbook page (or page of blank typing paper), and a ruler. If you do not have a ruler, take a piece of notebook paper or typing paper and fold it in half. Use the folded edge as a straight edge (ruler).

- a. Using a full sketchbook page in landscape format, draw your horizon line horizontally across the page. Make sure it is straight and level, parallel to the top and bottom edges of the picture plane. Set your two vanishing points at either end. If you prefer, and you have enough control of your workspace you could have your VPs outside the picture plane, on adjacent pieces of paper (see diagrams on page 3).
- b. Begin the drawing by charting out the space with squares in perspective and cubes or blocks, all aligned to those two vanishing points.. Then begin “building” a staircase, also aligned to the vanishing point. If time allows, complete the staircase.

*As you work, remember the three sets of parallel lines:

- 1- vertical
- 2.- “horizontal” but appearing angled, converging on left VP
- 3.-“horizontal” but appearing angled, converging on right VP

Thursday, May 21

1. Optional: Watch the instructional video “Blocks, Ground Planes, Staircases”.
2. Continue your “Fantastical Staircase” drawing by developing the imaginary architectural space with additional staircases. Keep in mind:
 - a. Create an imaginary world based on stairs by including the following:
 - i. Some may go nowhere.
 - ii. Some may switch direction.
 - iii. Some may go into an opening in the floor.
 - iv. Some may rise above our heads.
 - b. Add paths, walls with windows and doorways (but with depth/thickness!), openings in the ground, etcetera.
 - c. All contours, all lines, all structures are aligned to the vanishing points and subject to the consistent eye-level - this is key!
3. **By the end of this session** your drawing should have the following elements*, all aligned to the two vanishing points using two-point perspective:
 - ____ two staircase (minimum 4 steps each)
 - ____ three cuboids forms (cubes or rectangular prisms)
 - ____ one wall surface with an opening (window/arch/doorway) - remember depth!
 - ____ one example of overlapping forms

Note: you may add spheres, pyramids, and cylinders into the scene if you wish.

*This list is a minimum; you can go much farther if you have the time and inclination!

Friday, May 22: Use Friday to attend office hours or to catch up on the week’s work.

Have a great weekend!

Setting up your page for the Fantastical Staircase drawing:

Orient page horizontally, for landscape format. Use the entire sheet for this drawing – you will need the space! Lightly mark the horizon and vanishing points – you won't actually show the horizon in finished work!

Option #1: Draw the horizon (eye-level) and set the VPs on either end of the page – right on the edge!



Option #2: Draw the horizon (eye-level) and set up another page at either side (one or both). Extend the horizon, mark the edges of the page on your extension paper. Set the VPs as desired on the extension pages.



“View through a Window”

Project Overview

Imagery:

For this project you are drawing a view of the world outside as seen from a window of your home. You may extend the concept of the window to a door, balcony or porch, but the core concept is a window. You will include some part of the indoors, if only part of the window frame and window sill or side wall.

Composition:

You have completed visual research and selected a view and composition. Continue to make decisions that create a strong composition through effective use of the principles and elements of design.

Draftsmanship and Style:

Develop strong draftsmanship, showing the specific line and shape qualities of your subjects, overlapping of shapes, and strong positive/negative shape relationships. Apply principles from linear perspective, such as converging parallel lines, and eye-level. Employ keen observation, but you do not need to have a photographic realism style. Your work can be slightly stylized or simplified, though this should not be in a comic strip or manga style or aesthetic. (With more freedom animation styles can be a temptation or a default, so I bring your attention to it now.) Instead, your style should be based on observation of form and specific shape relationships in the subjects before you. A wide variety of styles are possible within these bounds. For acceptable approaches to simplified form, please see pages 6-7 from the Week 7 packet.

Picture Plane:

The picture plane for your drawing should take up a full sketchbook page, though if for compositional reasons you need a border along the lower edge you should establish one, making sure it is straight and perpendicular to the side edges. Your drawing should be at least 8x8, but is more likely to be rectangular. Orient your page appropriately - horizontal for the landscape format, vertical for the portrait format.

Media:

You will have the opportunity to use dry media of your choice in this project - so colored pencil or pen is also an option (and there are other possibilities depending on what you have at home). Of course, every media requires a certain investment of time and craft, and the pacing of this project is based on pencil. Other media may take longer. As you consider what you would like to use, look back at the examples by the New York artists.

Concept and Expression:

In an excellent artwork, composition, imagery and style should come together to create an individual expression. You might create a particular type of atmosphere or create metaphor. Perhaps you'll include symbolism. Often meaning and expression develop naturally as part of the decision-making process.

Remote Learning Packet

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Week 8: May 18-22, 2020

Course: Calculus I

Teacher(s): Mr. Simmons

Weekly Plan:

Monday, May 18

- Story time!
- Review the significance of derivatives

Tuesday, May 19

- Practice problems

Wednesday, May 20

- Conceptual questions

Thursday, May 21

- Assessment

Friday, May 22

- Attend office hours
- Catch up or review the week's work

Statement of Academic Honesty

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Monday, May 18

1. Happy Monday! If technologically feasible, please let me know how you're doing. Tell me a story from your life. Your summer plans. Your hopes and dreams. Your daily frustrations. Your hobbies. Looking forward to hearing from you!
2. Read the section entitled "Graphing Functions with Calculus Methods."

Tuesday, May 19

1. Complete the practice problems.

Wednesday, May 20

1. Look at the answers to the practice problems.
2. Answer, in full, complete, grammatical sentences, both conceptual questions for Week 8. As it says in the instructions, you are writing as if you are teaching these concepts to someone whose only math instruction has been your answers to last week's questions. (If you wish, you may answer these questions together, not in separate answers.)
3. Compare your answers to the conceptual questions with mine.

Thursday, May 21

1. On this day, I will post an assessment on Google Classroom. You will be able to complete it completely on the computer. The practice problems from this week and the past two weeks fully represent the kinds of questions that will be on this assessment. It will pull more heavily from this week's problems. Please email me if you have questions about these questions.

Week 8: Derivatives and Graphs

Mr. Simmons

Calculus I

Graphing Functions with Calculus Methods

Review each of the following theorems of calculus, and complete the practice problems that exemplify how the truths of the theorems help us graph and interpret graphs of functions more accurately than we could have with precalculus methods.

Theorem (Fermat's Theorem). *If f is defined on (a, b) and has a local maximum (or minimum) at x , and f is differentiable at x , then $f'(x) = 0$.*

This is sometimes called Fermat's theorem of stationary points. It's the theorem we use to find the exact maximum or minimum values of polynomials.

But note that a derivative of $f'(x) = 0$ does not necessarily imply a maximum or minimum point at x . Consider $x = 0$ for $f(x) = x^3$. Then $f'(0) = 3(0)^2 = 0$, but $f(0) = (0)^3 = 0$ is certainly not a maximum nor minimum value of f . So how are we supposed to use this theorem to find maxima and minima? It's a first step. It finds us what we call critical points, and then we have to figure out whether a given critical point is a maximum or minimum.

The method for distinguishing between extreme values and other critical points builds up out of some corollaries to the Mean Value Theorem:

Theorem (Rolle's Theorem). *If f is continuous on $[a, b]$ and differentiable on (a, b) , and $f(a) = f(b)$, then there is a number x in (a, b) such that $f'(x) = 0$.*

This theorem states that if a differentiable function has the same value at two different points, it had to be flat at some point between the two. To phrase that in terms of motion, it means that if an object is in the same place at two different times, then the object had to be stationary at some time in between, even if only for a moment (as when a ball that's tossed directly upward is stationary for an instant at the apex of its trajectory).

Theorem (The Mean Value Theorem). *If f is continuous on $[a, b]$ and differentiable on (a, b) , then there is a number x in (a, b) such that*

$$f'(x) = \frac{f(b) - f(a)}{b - a}.$$

This theorem is a slanted version of Rolle's theorem. It states that at some point between any two points on a differentiable function, the exact rate of change had to equal the average rate of change. To phrase that in terms of motion, it means that if an object is, for example, at one point one moment and 60 miles away an hour later, than at some point between those two times it had to be going exactly 60 mph.s

Corollary (First). *If f is defined on an interval and $f'(x) = 0$ for all x in the interval, then f is constant on the interval.*

Corollary (Second). *If f and g are defined on the same interval, and $f'(x) = g'(x)$ for all x in the interval, then there is some number c such that $f = g + c$.*

Another way of phrasing this is to say that two functions with equal derivatives are either the same function or one of them is just the other shifted up or down.

Corollary (Third). *If $f'(x) > 0$ for all x in an interval, then f is increasing on the interval; if $f'(x) < 0$ for all x in the interval, then f is decreasing on the interval.*

Flowing from these corollaries is a method for finding extreme values exactly, sometimes called the “first derivative test.” We use Fermat’s theorem to find critical points, and then we use the first and third corollaries to the Mean Value Theorem to see if the critical points found are maxima, minima, or neither. Suppose that x is a critical point of f :

1. If $f' > 0$ in some interval to the left of x and $f' < 0$ in some interval to the right of x , then x is a local maximum point.
2. If $f' < 0$ in some interval to the left of x and $f' > 0$ in some interval to the right of x , then x is a local minimum point.
3. If f' has the same sign in some interval to the left of x as it has in some interval to the right, then x is neither a local maximum nor a local minimum point.

Once we have found what kind of critical point it is, we can calculate $f(x)$ to see what the exact value is.

We can now state a reliable method for graphing functions using the methods of calculus. To graph a function f , find

1. the critical points of f ,
2. the value of f at the critical points,
3. the sign of f' in the regions between critical points (if this is not already clear),
4. the numbers x such that $f(x) = 0$ (if possible),
5. the behavior of $f(x)$ as x becomes large or large negative (if possible).

Although the location of local maxima and minima of a function is always revealed by a detailed sketch of its graph, it is usually unnecessary to do so much work. There is a popular test for local maxima and minima which depends on the behavior of the function only at its critical points.

Theorem. *Suppose $f'(a) = 0$. If $f''(a) > 0$, then f has a local maximum at a ; if $f''(a) < 0$, then f has a local minimum at a .*

Theorem. *Suppose $f''(a)$ exists. If f has a local minimum at a , then $f''(a) \geq 0$; if f has a local maximum at a , then $f''(a) \leq 0$.*

The method that follows is sometimes called the “second derivative test.” Suppose that x is a critical point of f and that f'' is continuous in a region around x :

1. If $f''(x) < 0$, then x is a local maximum point.
2. If $f''(x) > 0$ then x is a local minimum point.
3. If $f''(x) = 0$ then x can be a relative maximum, relative minimum, or neither.

Practice Problems

1. Show that there are no critical points for following functions.
 - (a) $f(x) = \frac{1}{x}$
 - (b) $f(x) = \frac{1}{x^2}$
 - (c) $f(x) = \frac{3x+7}{x+2}$
 - (d) $f(x) = \frac{x+3}{x^2-9}$
2. Graph the following functions using the methods of calculus:
 - (a) $f(x) = x^4 - 2x^2$
 - (b) $f(x) = \frac{x^2-2x+2}{x-1}$ (Hint: the slant asymptote of this graph is $y = x - 1$.)
3. Find the local maximum and local minimum (and say which is which) of the function defined by

$$f(x) = x^3 - x.$$
4. Consider the point $(3, 1)$ and the linear function $f(x) = (3/2)x$. Come up with a function d , where $d(x)$ is the distance between $(3, 1)$ and the point $(x, f(x))$. Minimize d ; that is, find its minimum by finding which critical point is a minimum point and then evaluating d there. (Hint: d^2 and d have the same critical points, and it's easier to find them for d^2 .) What does the minimum value of d that you just found represent?
5. Come up with a function A where $A(w)$ is the area of a rectangle of width w and perimeter P . (You'll need to find the height h in terms of w and P , noting perhaps that $2w + 2h = P$.) Find the value for w that maximizes $A(w)$.

Conceptual Questions

Answer the following questions in your own words. Try to avoid using symbols to the extent possible. Instead, write in full, complete, grammatical sentences. Answer these questions as if you're teaching these concepts to someone whose only math training has been to read and understand your answers to the conceptual questions from the last two weeks. That might mean giving examples, counterexamples, or analogies, for example. If you use any notation, it means explaining that notation, unless you explained it already. (This is the most important part of the review.)

1. How do derivatives help us graph functions more precisely than precalculus methods had allowed for?
2. How do derivatives help us maximize or minimize (or optimize, meaning either maximize or minimize) functions?

Remote Learning Packet

Please submit scans of written work in Google Classroom at the end of the week.

Week 8: May 18-22, 2020

Course: Drama

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

Weekly Plan:

Monday, May 18

- Prepare for Zoom Performance (notes in lesson plan)
- Prepare for Private Performance (notes in lesson plan)

Tuesday, May 19

- Prepare for Zoom Performance - review attached props/costumes document
- Prepare for Private Performance

Wednesday, May 20

- Prepare for Zoom Performance
- Prepare for Private Performance

Thursday, May 21

- Prepare for Zoom Performance by reading Friday's explanation**
- Prepare for Private Performance

Friday, May 22

- 11am - Office hours
- Zoom Recording - 2-5pm - everyone must attend**

Statement of Academic Honesty

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Student Signature

Parent Signature

Monday, May 18

1. Zoom Performance is this **Friday, May 22 from 2-5pm**. Everyone must be there for the whole time. Prepare for it by doing the following:
 - Review your lines, especially scenes you struggle with more
 - Practice your REACTIONS to what other characters say while you're on stage (practice in front of a mirror if possible)
 - Make sure you have your costumes, props, and make-up prepared
 - Make sure you have a white/beige/light-colored wall to record in front of (you may hang up a white sheet for your backdrop if you don't have anything else)
 - Make sure your recording space will be quiet on Friday
 - Make sure you have a device with audio/camera and a good internet connection for the recording
2. Your Private Performance is **due by Wednesday, May 27** on Google Classroom. Prepare for it by:
 - Memorizing and rehearsing your assigned lines
 - Getting your costume, props, make-up, furniture, and location ready for recording
 - Record yourself whenever you're ready!

Tuesday, May 19

1. Review your lines for your private performance and Zoom performance
2. Review the two attached documents to double-check costume and prop specifics there
3. See Monday for more details on preparing

Wednesday, May 20

1. Review your lines for your private performance and Zoom performance
2. See Monday for more details on preparing

Thursday, May 21

1. Review your lines for your private performance and Zoom performance
2. Read Friday's assignment on the next page so you are prepared for Friday's performance. If you are confused or have questions, please email or PM me or attend Friday's office hours.

Friday, May 22

1. Join this Zoom link **by 1:55pm:**
<https://greathearts.zoom.us/j/98490408188?pwd=aUJKTWsyM3RaMFBkWTZyeE5GUnh3QT09>
2. It is important everyone arrives on time so we can end on time. You must have a camera; you cannot join by phone for the recording.
3. This is how I anticipate the recording will go:
 - a. I will check to make sure everyone is in costume and location (light-colored wall for background).
 - b. You will rename yourself on Zoom with your character's name.
 - c. We will record the play straight through from beginning to end as if it were a live performance.
 - d. If you are not in the scene currently being recorded, I will put you "backstage" (i.e. in the Zoom waiting room). While you are not currently "on stage," you may review your lines or read a book or do something else while you wait, but you must keep the Zoom meeting on and you must remain with your device so that you are ready for when it is your scene.
 - e. If you are in the current scene but your character hasn't "entered" yet, you will have your camera and audio off. "Enter" by turning them on. When you are in a scene and "on stage" keep your mic and camera on. When you "exit" in the middle of a scene, turn off your mic and camera.
 - f. I recommend having your screen on the "gallery view" on Zoom so you can see the other characters you are interacting with.
 - g. Remember to *ACT* even when your character doesn't have lines--you need to be reacting to what the other characters are saying and doing.** It's all in the face.
 - h. If you have a costume change, please have your change of clothes ready and know when you need to make the change. I recommend writing this into your script!
 - i. The student director and I will be present for the performance, but our cameras and audio will be off; we will be providing any direction between scenes.

I am largely leaving your costume up to you. I trust you to find something that is suitable to your character that you have at home. Your costume needs to include how you do your hair and make-up (boys, don't worry about make-up unless you want to add fake facial hair). Hair is a big part of the costume, especially since we'll only see your head/shoulders/chest in the camera.

This document includes some specifics that characters need, most of which are scene-specific. If you have a costume change, have your other costume on hand so you can quickly change between scenes with your camera off.

ACT I	CHARACTER/COSTUME
Scene 1	Viola - female clothes (bedraggled--you just survived a shipwreck) Captain - bedraggled (see Viola)
Scene 2	
Scene 3	Sir Toby - if possible, make yourself fat with a pillow in your shirt
Scene 4	
Scene 5	Olivia - wear black mourning clothes
Scene 6	

ACT II	CHARACTER/COSTUME
Scene 1	Sebastian - wear clothes as close as possible to Viola's disguise
Scene 2	
Scene 3	
Scene 4	

ACT III	CHARACTER/COSTUME
Scene 1	Olivia - don't be dressed in black anymore for the rest of play
Scene 2	
Scene 3	
Scene 4	Malvolio - yellow stockings & black garters

ACT IV	CHARACTER/COSTUME
Scene 1	
Scene 2	Clown - priest's collar and fake beard
Scene 3	Priest - be dressed like a priest!

ACT I	CHARACTER/PROP
Scene 1	Viola - gold coin
Scene 2	Musicians - musical instruments
Scene 3	Sir Toby - flask/bottle/glass (no real alcohol; but do put water or juice into the container so you can actually drink)
Scene 4	
Scene 5	Olivia, Maria, & Servant - black veil/scarf Olivia - (gold) coin Olivia - ring
Scene 6	Malvolio - ring Viola - ring

ACT II	CHARACTER/PROP
Scene 1	
Scene 2	Sir Toby, Sir Andrew, & Clown - flask/bottle/glass (no real alcohol; but do put water or juice into the container so you can actually drink) Sir Toby, Sir Andrew, & Clown - each need a coin
Scene 3	Musicians - musical instruments Orsino - jewel
Scene 4	Maria - letter Malvolio - letter Sir Toby, Sir Andrew, & Fabian - branch/house plant/something leafy to "hide" behind

ACT III	CHARACTER/PROP
Scene 1	Clown - tabor (a small drum) Viola - two coins Clown - two coins
Scene 2	
Scene 3	Antonio - wallet Sebastian - wallet
Scene 4	Malvolio - yellow stockings & black garters Olivia - jewel/necklace Sir Andrew - letter Sir Toby - letter Sir Andrew - sword (or stick or some sort of weapon) Viola - sword (or stick or some sort of weapon) Viola - coins Antonio - sword

ACT IV	CHARACTER/PROP
Scene 1	Sebastian - dagger
Scene 2	Clown - priest's collar and fake beard Malvolio - bars (rungs of a chair or something put between you & the camera to look like you're locked up OR hands tied and eyes blinded)
Scene 3	

ACT V	CHARACTER/PROP
Scene 1	Clown - letter Orsino - coins Clown - coins Fabian - letter Malvolio - letter Olivia - letter

Recording Permission Slip

Dear Great Hearts Parent/Guardian -

Instead of putting on a live production for the Spring 2020 Junior Drama class, we will be recording a virtual performance over Zoom and students will be recording some of their own lines for a private performance at home. These may be used on social media or shared with the Great Hearts Irving community.

Please indicate your consent below:

I give my consent for my child to participate in these recordings of the Great Hearts Irving Junior Play: William Shakespeare's *Twelfth Night* and for their part to be shared on social media.

I give my consent for my child to participate in these recordings of the Great Hearts Irving Junior Play: William Shakespeare's *Twelfth Night* but do NOT want their part to be shared on social media.

PRINT Student full name: _____.

PRINT Parent/Guardian name: _____.

SIGN Parent/Guardian name: _____.

Today's date: _____.

Remote Learning Packet

Please submit scans of written work in Google Classroom at the end of the week.

Week 8: May 18-22, 2020

Course: 11 Greek

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

Weekly Plan:

Monday, May 18

- Read Ch. 9 α grammar 1: present active participles
- Optional: instead/in addition to the above, watch my explanation video on Google Classroom
- Complete the Monday worksheet, Exercise 9 β

Tuesday, May 19

- Complete the Tuesday worksheet, workbook Exercise 9 α pt. 1

Wednesday, May 20

- Complete the Wednesday worksheet, workbook Exercise 9 α pt. 2

Thursday, May 21

- Complete the Thursday worksheet, Exercise 9 γ

Friday, May 22

- attend office hours
- catch-up or review the week's work

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Parent Signature

χαιρετε φιλοι,

θαρρει! We are *so close to the end*. This is our last full week of material. We can make it...εὐομαι! Let me know if you have any questions or need help. Good luck!

Monday, May 18

Read the grammar section on participles on page 158-159.

Want to not? Log on to Google Classroom and watch me explain it instead.

Complete the Monday worksheet, Exercise 9β.

Tuesday, May 19

Complete the Tuesday worksheet, workbook Exercise 9α part 1.

Wednesday, May 20

Complete the Wednesday worksheet, workbook Exercise part 2.

Thursday, May 21

Complete the Thursday worksheet, Exercise 9γ.

Friday, May 22

I'd love to see you guys before the end of the school year! If you have questions or just want to chat, come to Greek Office Hours at 10:30am - link available in the stream of our Google Classroom.

Monday

Exercise 9β

After reading the grammar on pgs. 158-159, answer the following questions:

In the active voice, which declension do masculine and neuter participles use?

1st 2nd 3rd

In the active voice, which declension do feminine participles use?

1st 2nd 3rd

In the **middle** voice, what was the identifying stem for participles?

-ντ- -μεν- -σησ-

In the **active** voice, what is the identifying stem for masculine and neuter participles?

-οντ- -μεν- -ουσ-

In the **active** voice, what is the identifying stem for feminine participles?

-οντ- -μεν- -ουσ-

*Write the correct form of the present participle of the verb given in the parentheses (active **or** middle - take note when you need each one!) to agree with the following article-noun groups:*

1. οἱ παῖδες _____ (τρέχω)
2. τῷ ἀνδρὶ _____ (βαδίζω)
3. τοὺς νεανίας _____ (τιμαῶ - α-contract)
4. τοῖς παισι(ν) _____ (εἶμι - irregular)
5. τῶν νεανίων _____ (μαχομαι - middle voice!)
6. τὰς γυναῖκας _____ (λέγω)
7. τὸν Δικαιοπόλιν _____ (εὐχομαι - middle voice!)

Tuesday

Workbook Ex. 9α part 1

Complete the following sentences with a participle of the verb supplied; make it agree with the underlined phrase or complete the meaning of the underlined verb. You do not have to translate.

1. ἡ γυνή την θυγατέρα _____ οἴκαδε τρέχει. (ζητεω - ε-contract)
2. τοῖς παισὶ τοῖς _____ ἐπονται. (τρέχω)
3. οἱ πολῖται οἱ την πόλιν _____ τιμῶσιν αὐτήν. (φίλεω - ε-contract)
4. ὁ δεσποτὴς ἀκούει τῶν δούλων τῶν _____. (πονέω - ε-contract)
5. τῷ ποιητῇ τῷ τον βασιλεῖα _____ σίτον παρεχοῦσιν. (τιμαω - α-contract)
6. οἱ πατερες τὰς θυγατέρας _____ καλοῦσιν. (ὄραω - α-contract)
7. ὁ παῖς ὁ την παρθενὸν _____ οὐ σωφρον ἐστίν. (καλέω - ε-contract)
8. ἡ παρθενὸς του πατρος _____ οἴκαδε ἐρχεται. (ἀκούω)
9. ὁ δούλος ὁ ἐν τῷ ἀγρῷ _____ οὐ πονεῖ. (καθευδω)
10. αἱ θυγατέρες οὐ παυνοῦνται τοὺς πατέρας _____. (τιμαω - α-contract)
11. τον αὐτουργον τον προς τον ἀγρον _____ καλοῦμεν. (σπευδω)

Wednesday

Workbook Ex. 9α part 2

Complete the following sentences with a participle of the verb supplied; make it agree with the underlined phrase or complete the meaning of the underlined verb. You do not have to translate.

1. ὁ νεανίας πουν οἶνον _____ καμνει. (πινω)
2. τους πολιτας τους τον σιτον _____ ὀρῶ. (ἐσθιω)
3. ἔχω τον ἵππον τον του ξενου του _____. (καθευδω)
4. τῷ θεῷ τῷ την εὐχην (*the prayer*) _____ τιμην (*honor*) παρεχουσιν. (ακουω)
5. οἱ δουλοι οὐ παυονται _____. (καθευδω)
6. ἀκουομεν των γυναικων των _____. (βοαω - α-contract)
7. οἱ ἄνδρες ἀνδρειοι _____ οὐ φοβονται. (εἶμι - irregular)
8. ἡ γυνη _____ τον ἄνδρα καλει. (βοαω - α-contract)
9. τον ἄνδρα τον _____ ὀρωμεν. (πονεω - ε-contract)
10. οὐχ ὀρωσι τον ἄνδρα τον θεον _____. (τιμαω - α-contract)
11. ὁ πολιτης ὁ την πολιν _____ ἀγαθος ἐστιν. (τιμαω - α-contract)

Thursday

Exercise 9γ

Complete each of the following sentences by adding the correct form of a participle to translate the verb in parentheses, then translate the whole sentence:

1. οἱ δούλοι ἤκουσι (*have arrived*) τοὺς βούς _____ (leading).

Translation: _____

2. ὁ πολίτης ξενον τινὰ ὄρᾳ πρὸς τῇ ὁδῷ _____ (waiting).

Translation: _____

3. αἱ γυναῖκες ἐν τῷ ἀγρῷ καθίζονται τοὺς παιδάς _____ (watching).

Translation: _____

4. οἱ παῖδες οὐ παυνοῦνται λίθους _____ (throwing).

Translation: _____

5. οἱ ἄνδρες θεῶνται τὴν παρθενὸν πρὸς τὴν πόλιν _____ (running).

Translation: _____

Remote Learning Packet

Please submit scans of written work in Google Classroom at the end of the week.

Week 8: May 18-22, 2020

Course: 11 Humane Letters

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

Mr. Mercer andrew.mercer@greatheartsirving.org

Weekly Plan:

Monday, May 18

- Read *Genesis* 1-9
- Work on essay final draft

Tuesday, May 19

- Read *Genesis* 10-22
- Work on essay final draft

Wednesday, May 20

- Review/prep for seminar on *Genesis* 1-22
- Upload notes on seminar questions by end of day
- Work on essay final draft

Thursday, May 21

- Attend mandatory seminar on the week's readings
- Work to finish essay final draft

Friday, May 22

- Attend office hours
- Catch-up or review the week's work
- Turn in the Junior Project Essay on Google Classroom!

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, May 18

Read and annotate *Genesis* chapters 1-9.

Make at least one concrete addition or edit to your final essay.

The end is nigh! For this week, we hope to provide a balance between polishing your essay and enriching our minds and souls with one of the most profound and influential works in human history: the Old Testament's Book of *Genesis*. As we read this work, we will witness an account of the creation of the cosmos and its governing principles, as well as man's role in the formation of things and his close relationship with the divine, ending this week with the covenant made by God with Abraham. As we inevitably look with an eye towards comparison to other accounts of the cosmos such as Homer, an important quality of this reading to bear in mind is the radical nature of its authorship: unlike typical ancient works, there is no invocation of a muse; the claim being that the words are not those of a poet inspired by the divine, but from the divine itself.

Tuesday, May 19

Read and annotate *Genesis* 10-22.

Make at least one concrete addition or edit to your final essay.

Wednesday, May 20

Early in the week, we will upload a small collection of seminar questions as an assignment. This week, instead of simply reading them, we would like for you to write down your thoughts and ideas on these questions ahead of time and to submit them to the assignment in Google classroom before the time of the seminar. Your answers need not be formal, but rather should simply help you prepare and aid in your participation.

Make at least one concrete addition or edit to your final essay.

Thursday, May 21

Attend today's seminar on *Genesis* 1-22. Please note that in order to provide extra time to work on your final essays, the seminar will run for 60 minutes today instead of 90.

You should be finished with any major changes and additions to your essay by end of day today; use tomorrow as a final proof-read and polishing before turning it in.

Friday, May 22

Use today to catch up on work and attend office hours as needed. Prioritize finishing and turning in your final draft of the Junior Project essay. Once you are finished, upload it to the appropriate assignment topic ("2019-2020 Junior Project Final Essay") on the Google Classroom page.

Physics Remote Learning Packet

Please submit scans of written work in Google Classroom at the end of the week.

Week 8: May 18-22, 2020

Course: 11 Physics

Teacher: Miss Weisse natalie.weisse@greatheartsirving.org

Resource: *Miss Weisse's Own Physics Textbook* — new pages found at the end of this packet

Weekly Plan:

Monday, May 11

- Read *Unit 8 Part 8 - Power* of *Miss Weisse's Own Physics Textbook*
- Complete **Worksheet 5 #1-3**
- Email Miss Weisse with Questions and to Ask for Solutions
- Spend 10 Minutes Reviewing All of *Unit 8 – Energy* for an Assessment on Wednesday

Tuesday, May 12

- Review *Unit 8 Part 8 - Power* of *Miss Weisse's Own Physics Textbook*
- Complete **Worksheet 5 #4-5**
- Email Miss Weisse with Questions and to Ask for Solutions
- Spend 10 Minutes Reviewing All of *Unit 8 – Energy* for an Assessment on Wednesday

Wednesday, May 13

- Complete ***Unit 8 – Energy* Assessment on Google Classroom**

Thursday, May 14

- Complete **Review Diagram**
- Email Miss Weisse with Questions

Friday, May 15

- Attend Office Hours at 9:30 AM!
- Turn in your assignments on Google Classroom by the end of the day Sunday May 17.

Please turn in all items in green!

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

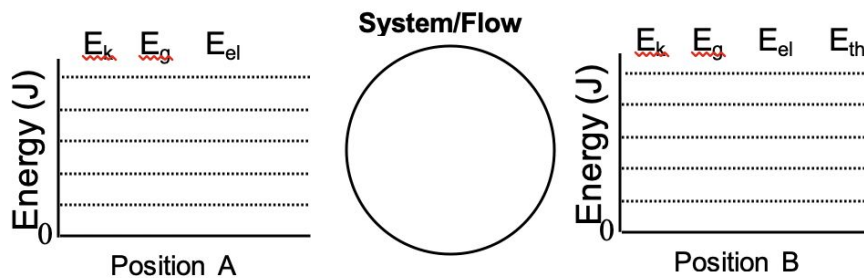
Parent Signature

Monday, May 18

- Read *Unit 8 Part 8 - Power of Miss Weisse's Own Physics Textbook*
- Complete *Worksheet 5 #1-3*
- Email Miss Weisse with Questions and to Ask for Solutions
- Spend 10 Minutes Reviewing All of *Unit 8 – Energy* for an Assessment on Wednesday

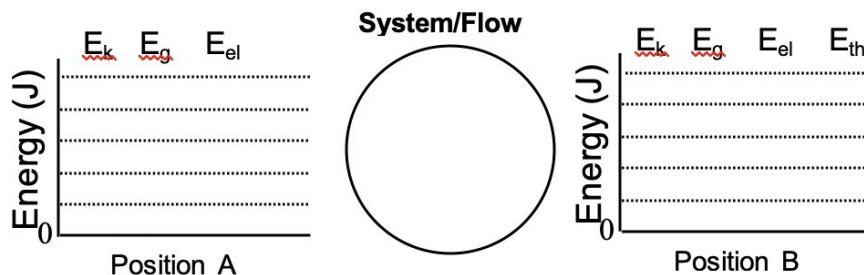
Energy Storage and Transfer Model Worksheet 5 #1-3: Energy Transfer and Power

1. Jill pulls on a rope to lift a 12 kg pail out of a well, while the clumsy Jack watches. For a 10.0 meter segment of the lift, she lifts the bucket straight up at constant speed.
 - a. How much power is required to complete this task in 5.0 seconds?
 - b. Complete the energy bar graph as part of your solution.



Conservation of Energy Equation:

2. Hulky and Bulky are two workers being considered for a job at the UPS loading dock. Hulky boasts that he can lift a 100 kg box 2.0 meters vertically, in 3.0 seconds. Bulky counters with his claim of lifting a 200 kg box 5.0 meters vertically, in 20 seconds. Which worker is more powerful?
3. The trains on the Boss roller coaster are raised from 10.0 m above ground at the loading platform to a height of 60.0 m at the top of the first hill in 45 s. Assume that the train (including passengers) has a mass of 2500 kg.
 - a. Ignoring frictional losses, how powerful should the motor be to accomplish this task?
 - b. Complete the energy bar graphs below.



Conservation of Energy Equation:

Tuesday, May 19

- Review *Unit 8 Part 8 - Power of Miss Weisse's Own Physics Textbook*
- Complete *Worksheet 5 #4-5*
- Email Miss Weisse with Questions and to Ask for Solutions
- spend 10 Minutes Reviewing All of *Unit 8 – Energy* for an Assessment on Wednesday

Energy Storage and Transfer Model Worksheet 5 #4-5: Energy Transfer and Power

1. An aerodynamic 1,000 kg car takes about 270 newtons of force to maintain a speed of 25 m/s.
 - a. How much horsepower (hp) is required from the engine to maintain this speed? (1 hp = 746 W)
Hint! Review page 81 carefully!
 - b. How much horsepower is required for the same car to accelerate from 0-25 m/s in 6.0 seconds?
2. Your electric utility company sends you a monthly bill informing you of the number of kilowatt-hours of energy you have used that month.
 - a. What is a kilowatt-hour (kilowatt x hour, or kWh)? Determine how many Joules equal one kilowatt-hour.
 - b. A refrigerator-freezer uses energy at a rate of 500. watts when you hear the compressor running. If the fridge runs for 200. hours per month, how many kilowatt-hours of energy does the refrigerator use each month?
 - c. In the Dallas area, electricity rates range from 8.0 cents per kilowatt-hour (winter) to 11.5 cents per kWh (summer). How much does the energy cost each month to run the refrigerator?

Wednesday, May 20

- Complete *Unit 8 – Energy Assessment on Google Classroom*
 - ◆ This assessment is open notes. Use *Miss Weisse's Own Textbook*, use assignments, use *your brain!* Just don't use another person. This must be your own work.

Thursday, May 21

- Complete Review Diagram found on the next page
 - ◆ We have learned two descriptive measurements of motion and two causal measurements of motion since September. Identify these four measurements (don't include momentum). Then, in the four boxes, show how we pictorially represent the measurement, how we use words to explain the measurement, what changes in the measurement, and the equation *and units* of the measurement.
 - ◆ If you do not have a printed copy, recreate the diagram on your own paper.

You have made it to the end of the last full week of school!

We are so close to summer!

Thank you for working so diligently

in these strange, strange times.

IMAGE

WORDS

WHAT IS CHANGING?

EQUATION & UNITS



I M A G E

W O R D S

C H A N G I N G

E Q U A T I O N

CAUSE



Kinematics
Objects in Motion

DESCRIPTION



DESCRIPTION



CAUSE



I M A G E

W O R D S

C H A N G I N G

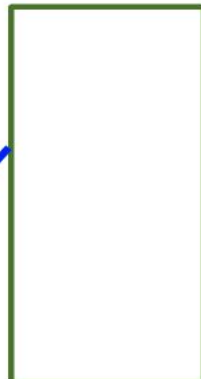
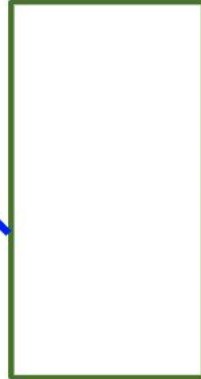
E Q U A T I O N

IMAGE

WORDS

WHAT IS CHANGING?

EQUATION & UNITS



Unit 8 - Energy

Part 8

Power

The last new concept we will discuss this school year is **POWER**. Before reading on, try to write down or say out loud (or even email me!) how you would define **power** (the concept of power, not its physics-y meaning).

...

Maybe your thoughts tended toward political power like a president, king, or dictator. Or possibly something like the power of words in an argument, book, or movie. Maybe your mind stuck to the physical world and physical properties like the powerful engine of a car or truck that can pull a heavy load, a powerful storm with damaging winds, or a powerful tackle in a rugby match.

All these ideas of power are on the right track.

POWER, in a general sense, is the quickness with which you get things done. It is not merely strength, but how effectively you use that strength. As an equation we see this as

$$P = \frac{\Delta E}{t}$$

$$P = \frac{W}{t}$$

In words, we would say **POWER** is the amount of energy transferred in some unit of time.

Or, **POWER** is the amount of **WORK** done in some unit of time.

Let's consider units -

$$P = \frac{W}{t} = \frac{\Delta E}{t} \left(\frac{J}{s} \right)$$

$$\underline{\underline{WATT}} = W = \frac{J}{s} = \frac{N \cdot m}{s} = N \left(\frac{m}{s} \right) = \frac{kg \cdot m}{s^2} \left(\frac{m}{s} \right) = \frac{kg \cdot m^2}{s^3}$$

↑
The Watt is
the Unit of Power

↑
This is also interesting.
These units suggest that

$\boxed{P = F \cdot \vec{v}}$ is another possible calculation of Power.

Now we have equations and units for **POWER**. Next step is to figure out what it means. Think about your 4-year-old self. You want a cup of milk and you want to pour it yourself. It takes the same amount of energy for you or your parent to lift the gallon and pour the milk, but it looks like you are putting in much more effort than your parent has to. WHY? Because you are lifting the gallon with less power as you slowly struggle to lift the milk high enough to

to poor it. Let's look at it mathematically. A gallon of milk has a weight of ~8.4 pounds, which is ~3.8 kg. 4-year-old you can lift the gallon 20cm above the table in (a very focused) 4s (because, of course, you're 4). Your parent can lift the gallon the same height in half a second. We can show your parent (though transferring the same amount of energy) is more powerful.

4-year-old you

$$\begin{aligned}
 P_{4yoy} &= \frac{W}{t} \\
 &= \frac{mgh}{t} \\
 &= \frac{(3.8\text{kg})(10\frac{\text{m}}{\text{s}^2})(.20\text{m})}{4\text{s}} \\
 &= \frac{7.6\text{J}}{4\text{s}} \\
 &= 1.9\text{ W}
 \end{aligned}$$

Parent

$$\begin{aligned}
 P_p &= \frac{W}{t} \\
 &= \frac{mgh}{t} \\
 &= \frac{(3.8)(10)(.20)}{0.5\text{s}} \\
 &= \frac{7.6\text{J}}{0.5\text{s}} \\
 &= 15.2\text{ W}
 \end{aligned}$$

Given Info

- $m = 3.8\text{ kg}$
- $h = 20\text{ cm} = 0.20\text{ m}$
- $t_{4yoy} = 4\text{ s}$
- $t_p = 0.5\text{ s}$

← SAME AMOUNT OF WORK

$$8 \times P_{4yoy} = P_{\text{parent}}$$

Your parent has EIGHT TIMES AS MUCH POWER as 4-year-old you has because your parent is doing the same amount of work more quickly.

Now for an example that combines the conservation of energy and power.

1. A student eats a tasty school lunch containing 700. Calories. (One food Calorie = 4186 joules.) Due to basal metabolism, the student radiates about 100. joules per second into the environment.
- a. How long would the student have to sit on a couch to radiate away all of the energy from lunch?

$$E = 700. \text{ Calories} \times \frac{4186 \text{ J}}{\text{Calorie}}$$

$$= 2,930,200 \text{ J}$$

$$P = 100 \frac{\text{J}}{\text{s}}$$

$$t = ?$$

First, we're confused—what do you mean by radiating?!

Second, WE LOOK AT THE UNITS!

$100 \frac{\text{J}}{\text{s}}$ that is

POWER!

$$\frac{t}{P} \cdot P = \frac{\Delta E}{t} \cdot \frac{t}{P}$$

$$t = \frac{\Delta E}{P}$$

$$t = \frac{2,930,200 \text{ J}}{100 \frac{\text{J}}{\text{s}}}$$

$$t = 29,302 \text{ s}$$

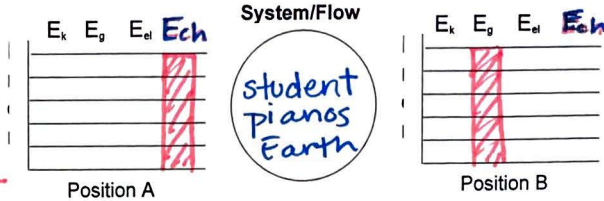
→ But we don't think in large numbers of seconds, let's change it into hours.

$$29,302 \text{ s} \times \frac{1 \text{ hr}}{3600 \text{ s}} = 8.14 \text{ hr}$$

→ THAT'S A LONG TIME! GET UP AND START MOVING!

- b. If all of the energy from the student's lunch did something useful, like lifting pianos weighing 5000 newtons to the top of a 10-meter tall apartment building, how many pianos could be lifted with the energy from lunch? (Ignore the energy radiated by the student.) Complete the energy bar graph below to aid your solution.

$F_{\text{piano}} = 5000 \text{ N}$
 $h = 10 \text{ m}$
 $E_{\text{lunch}} = 2,930,200 \text{ J}$



E_{ch} = chemical energy from your metabolism

Energy Conservation Equation: $(E_{ch})_A = (E_g \text{ of all Pianos})_B$

Let's start by calculating the E_g for one piano lifted to the top of the apartment building.

$$\begin{aligned}
 E_g &= mgh \\
 &= (mg)h \\
 &= (F_{\text{piano}})h \\
 &= (5000 \text{ N})(10 \text{ m}) \\
 &= 50,000 \text{ J}
 \end{aligned}$$

We can divide the total energy by the energy it takes to lift one piano to determine how many pianos can be lifted.

$$\frac{E_{\text{total}}}{E_{\text{1 piano}}} = \frac{2,930,200 \text{ J}}{50,000 \text{ J}} = 58.604 \text{ pianos}$$

But, of course, there can't be 0.604 of a piano so there is leftover energy: $(E_{\text{piano}})(.604)$

$$\begin{aligned}
 &= (50,000 \text{ J})(.604) \\
 &= 30,200 \text{ J left over.}
 \end{aligned}$$

Answer: The energy from the student's lunch is enough to lift 58 pianos to the top of an apartment building with 30,200 J left to radiate on the couch.

APPENDIX A

Miss Weisse's Musings on Power - An Analogy

For the same reason we say your parent is more powerful than your 4-year-old self because your parent can lift the gallon of milk the same height more quickly, we can also say some governments are more powerful than others. Thinking about our government in the United States, the power the government has changes every election. Let me explain - if we have a Republican president and a Senate with a Democrat majority, or vice versa, the government has less power because legislation becomes law VERY slowly. If, on the other hand, the executive and legislative branches are both Republican or Democrat or whatever, the government will have more power because legislation will pass and become law more quickly... A military coup would probably have the most power, because they would cause change rapidly. This is why we have checks and balances in our Democratic Republic.

I am not advocating for any specific type of government (and especially not a coup!), but is it not interesting how this concept in physics enlightens our understanding of more than just the physical world? I am in awe.

I hope I have been able to share a little of this ~~and~~ with you this year in Physics with Miss Weisse.

Remote Learning Packet

Please submit scans of written work in Google Classroom at the end of the week.

Week 8: May 18-22, 2020

Course: 11 Precalculus

Teacher(s): Mr. Simmons

Weekly Plan:

Monday, May 18

Complete problems 1-7 from “The Unit Circle.”

Tuesday, May 19

Start the trigonometry review

Wednesday, May 20

Finish the trigonometry review

Thursday, May 21

Take the trigonometry assessment

Friday, May 22

Attend office hours

Catch up or review the week’s work

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, May 18

1. Happy Monday! If technologically feasible, please let me know how you're doing. Tell me a story from your life. Your summer plans. Your hopes and dreams. Your daily frustrations. Your hobbies. Looking forward to hearing from you!
2. Complete problems from the section entitled "The Unit Circle," which you read last week.

At the end of this week, we will be having an assessment on trigonometry. Everything on the assessment will be reviewed in the next two days.

Tuesday, May 19

1. Start the review. If you want to finish it today, go ahead, but I encourage you not to work more than 40 minutes.

Wednesday, May 20

1. Finish the review.
2. Please let me know what questions you have before tomorrow's assessment!

Thursday, May 21

1. On this day, I will post an assessment on Google Classroom. You will be able to complete it completely on the computer. The practice problems from this week and the past three weeks fully represent the kinds of questions that will be on this assessment.

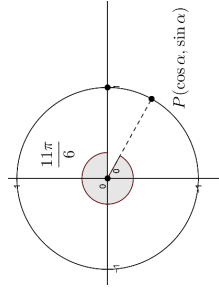


Figure 84

Again, use your Polar Plane to help you find $\frac{11\pi}{6}$. However, you'll want to have a very firm grasp of radians so don't completely rely on your Polar Plane.

Again, we now create a right triangle using the x -axis as our base. We get the special right triangle shown in Figure 85.

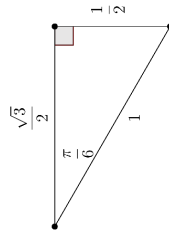


Figure 85

Then we just substitute, knowing what ratio we get with the Cosine function. Hence

$$\cos \frac{11\pi}{6} = \frac{1}{2}$$

This, also, should be positive, since we went to the right to get to P .

Be patient and resilient as you learn the unit circle. Mastery will come, but only with practice and perseverance. Once you master the unit circle, Trigonometry becomes your plaything.

§3 Exercises

- Plot the following points on the Polar Plane, then create a right triangle where the x -axis serves as the base.

- (A) $A(2, 135^\circ)$
- (B) $B(3, 300^\circ)$
- (C) $C(3, \frac{\pi}{6})$
- (D) $D(3, \frac{\pi}{6})$

- (C) $C(2, \frac{2\pi}{3})$
 - (E) $E(1, \frac{5\pi}{4})$
 - (F) $F(4, \frac{\pi}{3})$
- Determine whether the result of the following expressions will be positive or negative.
 - (A) $\sin 45^\circ$
 - (B) $\cos \frac{2\pi}{3}$
 - (C) $\sin \frac{5\pi}{6}$
 - (D) $\cos \frac{11\pi}{6}$
 - (E) $\tan \frac{\pi}{3}$
 - (F) $\sin 190^\circ$
 - (G) $\cos 299^\circ$
 - (H) $\tan \frac{4\pi}{3}$

- It might be helpful to list out which Quadrants produce which sign for each Trig function.

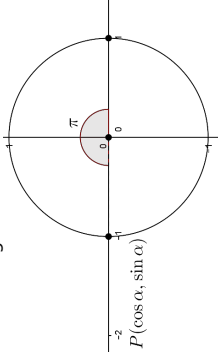
- (A) Which Quadrants is Sine positive? Negative?
- (B) Which Quadrants is Cosine positive? Negative?
- (C) Which Quadrants is Tangent positive? Negative?
- (D) True or False: If Sine is positive, then its reciprocal, Cosecant, must also be positive.
- (E) List out which sign the reciprocal Trig functions use for each Quadrant.
- (F) Go online and see if you can't find a convenient mnemonic device to help you remember.

- Convert the following Polar points into rectangular points.
 - (A) $A(2, 330^\circ)$
 - (B) $B(2, 210^\circ)$
 - (C) $C(2, \frac{7\pi}{6})$
 - (D) $D(3, \frac{4\pi}{3})$

- Let us now use the unit circle. First, let's practice finding the coordinates of a point P that's on the unit circle. In the following problems, use the given angle of rotation to list the coordinates of the point on the unit circle.

- (A) 120°
 - (B) $\frac{3\pi}{4}$
 - (C) $\frac{7\pi}{6}$
 - (D) 225°
 - (E) $\frac{4\pi}{3}$
 - (F) 300°
 - (G) $\frac{7\pi}{4}$
 - (H) 330°
- Now let's put the unit circle to use and evaluate some Trig expressions.
 - (A) $\sin 120^\circ$
 - (B) $\cos \frac{2\pi}{4}$
 - (C) $\sin \frac{5\pi}{6}$
 - (D) $\cos 210^\circ$
 - (E) $\sin \frac{11\pi}{6}$
 - (F) $\cos \frac{6}{4}$
 - (G) $\tan \frac{3\pi}{4}$
 - (H) $\tan \frac{4\pi}{3}$

- 7.) One thing we've not covered is points on the unit circle that are also on one of the axes. For example, look at the Figure below.



- The coordinates of P are quite trivial, are they not? They are $P(-1,0)$. More importantly, however, this does allow us to input angles such as π , $\frac{2\pi}{3}$, and 2π .
- Evaluate the Sine function when the input is π , $\frac{3\pi}{2}$, and 2π .
 - Evaluate the Sine function when the input is π , $\frac{3\pi}{2}$, and 2π .
 - Evaluate the Sine function when the input is π , $\frac{3\pi}{2}$, and 2π .
- 8.) In the previous Unit, we learned that $\sin^2 \alpha + \cos^2 \alpha = 1$ for all α . Let us now prove that this is so.
- Write out the equation of a circle centered at $(0,0)$ with radius 1 in terms of x and y .
 - What is the name of the circle whose equation you wrote in (A)?
 - What are the coordinates of a point on that unit circle? (Maybe write out the equality first)
 - Now write a formal proof of why $\sin^2 \alpha + \cos^2 \alpha = 1$.
- 9.) Now create a table of values for Sine, Cosine, and Tangent. Start with 0, then $\frac{\pi}{6}$, $\frac{\pi}{4}$, $\frac{\pi}{3}$, $\frac{\pi}{2}$, $\frac{2\pi}{3}$, and so on. There should be 16 inputs for each function.
- 10.) It might be helpful to identify some decimal approximations with their exact counterpart. List the decimal approximations (to the nearest thousandth) of $\frac{\sqrt{2}}{2}$ and $\frac{\sqrt{3}}{2}$.
- Given some circle with $P(-3,4)$, list the six Trig ratios.
 - Find the exact value of each of the remaining six Trig functions of α in the given Quadrant. (Hint: Draw a picture!)

(A) $\sin \alpha = \frac{3}{5}$, Quadrant II (B) $\cos \alpha = \frac{12}{13}$, Quadrant IV (C) $\sin \alpha = -\frac{2\pi}{11}$, Quadrant III (D) $\cos \alpha = -\frac{1}{61}$, Quadrant II	(E) $\sin \alpha = \frac{5}{13}$, Quadrant I (F) $\cos \alpha = -\frac{40}{41}$, Quadrant III (G) $\tan \alpha = \frac{4}{3}$, Quadrant III (H) $\tan \alpha = -\frac{12}{5}$, Quadrant II
--	---

Trigonometry Review

Precalculus

Mr. Simmons

Conceptual Questions

Answer the following questions in your own words. Write in full, complete, grammatical sentences. Answer these questions as if you're teaching these concepts to someone who's never heard of them before. That might mean giving examples, counterexamples, or analogies, for example. If you use any notation, it means explaining that notation. (This is the most important part of the review.)

1. What is an angle?
2. What is the measure of an angle? What is a radian? How is it different from a degree?
3. What is a triangle? (Notice the etymology: "tri" means "three": "angle" means . . . I'll let you figure it out.)
4. State the right-triangle trigonometry definitions of the functions sine, cosine, and tangent.
5. Explain polar coordinates.
6. State the unit-circle definitions of the functions sine, cosine, and tangent.
7. For a circle on which is drawn a central angle subtended by an arc, how does the angle's measure relate to the arc's length?
8. For a rolling wheel, how does the angle measure of the rotation of the wheel relate to the distance it has traveled?

Practice Problems

(See following pages.)

CHAPTER 5 REVIEW EXERCISES

ANGLES

For the following exercises, convert the angle measures to degrees.

1. $\frac{\pi}{4}$

2. $-\frac{5\pi}{3}$

For the following exercises, convert the angle measures to radians.

3. -210°

4. 180°

5. Find the length of an arc in a circle of radius 7 meters subtended by the central angle of 85° .

6. Find the area of the sector of a circle with diameter 32 feet and an angle of $\frac{3\pi}{5}$ radians.

For the following exercises, find the angle between 0° and 360° that is coterminal with the given angle.

7. 420°

8. -80°

For the following exercises, find the angle between 0 and 2π in radians that is coterminal with the given angle.

9. $-\frac{20\pi}{11}$

10. $\frac{14\pi}{5}$

For the following exercises, draw the angle provided in standard position on the Cartesian plane.

11. -210°

12. 75°

13. $\frac{5\pi}{4}$

14. $-\frac{\pi}{3}$

15. Find the linear speed of a point on the equator of the earth if the earth has a radius of 3,960 miles and the earth rotates on its axis every 24 hours. Express answer in miles per hour.

16. A car wheel with a diameter of 18 inches spins at the rate of 10 revolutions per second. What is the car's speed in miles per hour?

UNIT CIRCLE: SINE AND COSINE FUNCTIONS

17. Find the exact value of $\sin \frac{\pi}{3}$.

18. Find the exact value of $\cos \frac{\pi}{4}$.

19. Find the exact value of $\cos \pi$.

20. State the reference angle for 300° .

21. State the reference angle for $\frac{3\pi}{4}$.

22. Compute cosine of 330° .

23. Compute sine of $\frac{5\pi}{4}$.

24. State the domain of the sine and cosine functions.

25. State the range of the sine and cosine functions.

THE OTHER TRIGONOMETRIC FUNCTIONS

For the following exercises, find the exact value of the given expression.

26. $\cos \frac{\pi}{6}$

27. $\tan \frac{\pi}{4}$

28. $\csc \frac{\pi}{3}$

29. $\sec \frac{\pi}{4}$

For the following exercises, use reference angles to evaluate the given expression.

30. $\sec \frac{11\pi}{3}$

31. $\sec 315^\circ$

32. If $\sec(t) = -2.5$, what is the $\sec(-t)$?

33. If $\tan(t) = -0.6$, what is the $\tan(-t)$?

34. If $\tan(t) = \frac{1}{3}$, find $\tan(t - \pi)$.

35. If $\cos(t) = \frac{\sqrt{2}}{2}$, find $\sin(t + 2\pi)$.

36. Which trigonometric functions are even?

37. Which trigonometric functions are odd?

RIGHT TRIANGLE TRIGONOMETRY

For the following exercises, use side lengths to evaluate.

38. $\cos \frac{\pi}{4}$

39. $\cot \frac{\pi}{3}$

40. $\tan \frac{\pi}{6}$

41. $\cos\left(\frac{\pi}{2}\right) = \sin(\text{_____}^\circ)$

42. $\csc(18^\circ) = \sec(\text{_____}^\circ)$

For the following exercises, use the given information to find the lengths of the other two sides of the right triangle.

43. $\cos B = \frac{3}{5}$, $a = 6$

44. $\tan A = \frac{5}{9}$, $b = 6$

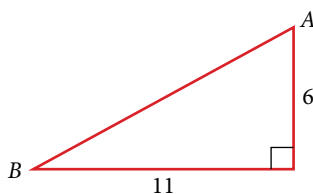
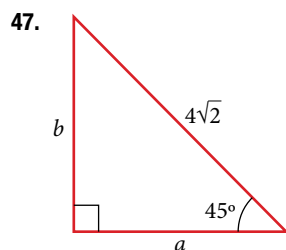
For the following exercises, use **Figure 1** to evaluate each trigonometric function.

Figure 1

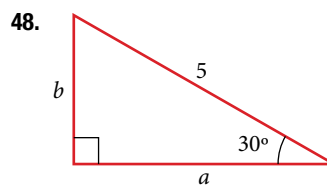
45. $\sin A$

46. $\tan B$

For the following exercises, solve for the unknown sides of the given triangle.



47.



48.

49. A 15-ft ladder leans against a building so that the angle between the ground and the ladder is 70° . How high does the ladder reach up the side of the building?

50. The angle of elevation to the top of a building in Baltimore is found to be 4 degrees from the ground at a distance of 1 mile from the base of the building. Using this information, find the height of the building.

Remote Learning Packet

Please submit scans of written work in Google Classroom at the end of the week.

Week 8: May 18-22, 2020

Course: Spanish III

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

Supplemental links: www.lingt.com/barreratumble

Weekly Plan:

Monday, May 18

- Capítulo 5 - Listening Activity: Storytime in Spanish from the book titled Vida o muerte en el Cusco.
- Capítulo 5 - Speaking Activity: Answer questions in Spanish relating to the chapter 4 and 5.

Tuesday, May 19

- Capítulo 5 - Read and write about looking for a job using the pluscuamperfecto/pluperfect.
- Capítulo 5 - To describe an action in the past that occurred before another action in the past.

Wednesday, May 20

- Capítulo 5 - Read and write about volunteer work using the present perfect subjunctive.
- Capítulo 5 - This tense refers to actions or situations that **may** have occurred before the action in the main verb.

Thursday, May 21

- Capítulo 5 - Vocabulary Assessment - jobs, personal qualities, skills needed and volunteer work.
- Grammar Assessment: Present perfect, pluperfect and present perfect subjunctive tense.

Friday, May 22

- attend office hours
- catch-up or review the week's work

Statement of Academic Honesty

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

Student Signature

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

Parent Signature

Monday, May 18

Capítulo 5 - Listening Activity: Storytime in Spanish from the book titled *Vida o muerte en el Cusco*.

Comprehension and Speaking Activity: Answer questions in Spanish relating to the chapter 4 and 5.

I. **Video: Listen** as I read to you Chapters 4 and 5, then answer the questions in lingt. Link is in google classroom. There will be a set of separate questions for each chapter.

Tuesday, May 19

Capítulo 5 - Read and write about looking for a job using the pluscuamperfecto/pluperfect. To describe an action in the past that occurred before another action in the past.

I. **Textbook p. 225 - Reading and grammar assignment - Activity 18- *En la agencia de empleos*.**

Jorge and Agustin went to an employment agency to ask for a job. Complete the following sentences by choosing the appropriate verb from the word bank to form the pluscuamperfecto/pluperfect.

Wednesday, May 20

Capítulo 5 - Read and write about volunteer work using the pluscuamperfecto de subjuntivo/present perfect subjunctive. This tense refers to actions or situations that **may** have occurred before the action in the main verb.

I. **Textbook p. 235 - Reading and grammar assignment - Activity 34 - *La bienvenida al comedor*.**

Santiago is the president of a soup kitchen. Fill in the blanks with the verb that Santiago uses to talk to his volunteers. In this tense there will be two subjects and two verbs with “que” in the middle separating the clauses. Remember that in the first clause the verb uses the present tense and in the second clause it is the present perfect subjunctive. **Subjunctive + past participle = haya** trabajado. **Me alegra** que **haya trabajado** de voluntario. In the first clause there is a present tense emotion (me alegra) therefore the present perfect subjunctive is used.

Thursday, May 21

Capítulo 5 - Vocabulary Assessment - jobs, personal qualities, skills needed and volunteer work.

Grammar Assessment: Present perfect, pluperfect and present perfect subjunctive tense.

I. **Textbook p. 254 - Preparación para el examen. Vocabulary assessment:** On a piece of paper write out 1 through 8 and choose the appropriate vocabulary word. Please write out the vocabulary word, no letters.

I. **Textbook p. 254 - Grammar assessment:** On a piece of paper write out 1 through 8 and choose the appropriate verb and/or adjective. Remember that in order to choose the correct adjective look at your noun and it is singular eliminate the plural adjectives visa versa. Please write out the verb and/or adjective, no letters.