Algebra + II + Quarter 4 Exam

asdf

Deklaration_167052611

helloworld

Presentkort_DW14963373_David_Sigemo

Algebra 2 Quarter 4 Exam   **Name/Student**
Number:_____

**Answer the questions below. Make sure to show your work and justify all of your answers**

Simplify the trigonometric expression**. Show your work.**

1.

$$\frac{1}{1 + \sin\theta} + \frac{1}{1 - \sin\theta}$$

2. In $\triangle ABC, \angle C$ is a right angle. Find the remaining sides and angles. Round your answers to the nearest tenth**. Show your work.**

$a = 3, c = 19$

3. Please show your work to find the mean and standard deviation of the data. Round to the nearest tenth.

20, 16, 18, 14, 9, 20, 16

4. What are the points of discontinuity? Are they all removable? Please show your work.

$$y = \frac{(x - 5)}{x^2 - 6x + 5}$$

5. A sound wave is modeled with the equation $y = \frac{1}{4} \cos \frac{2\pi}{3} \theta$.

a. Find the period. **Explain your method.**
b. Find the amplitude. **Explain your method**.
c. What is the equation of the midline? **What does it represent**?

6. Paula spots a glider located at an angle of elevation of 42°. The distance between the glider and Paula is 3280 feet. To the nearest foot, what is the height of the glider *h* from the ground? **Show your work**.

Glider

3280 ft

h

42 °

Paula
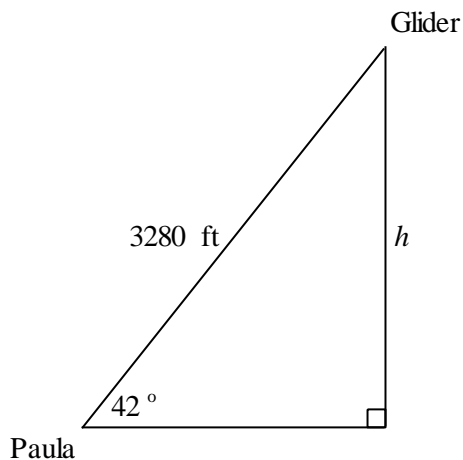
7. **What is the product in simplest form? State any restrictions on the variable. Please show your work.**

$$\frac{y^2}{y - 3} \cdot \frac{y^2 - y - 6}{y^2 + y}$$

Verify the identity. Justify each step.

8. $\tan\theta + \cot\theta = \dfrac{1}{\sin\theta\cos\theta}$

9. **Is there any bias in the survey question? Explain.**

What do think would help students pay more attention in class?

10. **Find the values of the 30th and 90th percentiles of the data. Please show your work.**
129, 113, 200, 100, 105, 132, 100, 176, 146, 152

11. What is the quotient in simplified form? State any restrictions on the variable. Show Work.

$$\frac{a+2}{a-5} \div \frac{a+1}{a^2 - 8a + 15}$$

12. Vance is designing a garden in the shape of an isosceles triangle. The base of the garden is 36 feet long. The function $y = 18 \tan \theta$ models the height of the triangular garden.

36 feet
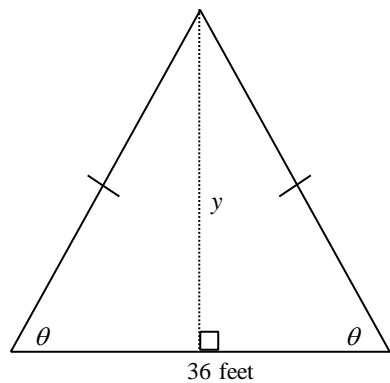
not drawn to scale

a. What is the height of the triangle when $\theta = 45°$?
b. What is the height of the triangle when $\theta = 55°$?
c. Vance is considering using either $\theta = 45°$ or $\theta = 55°$ for his garden. Compare the areas of the two possible gardens. Explain how you found the areas.

13. Verify the identity. <u>Justify each step.</u>

$$\frac{\sec\theta}{\csc\theta - \cot\theta} - \frac{\sec\theta}{\csc\theta + \cot\theta} = 2\csc\theta$$

14. Compare the graphs of the inverse variations. Please provide at least 3 comparisons

$$y = \frac{-0.2}{x} \text{ and } y = \frac{-0.3}{x}$$

15. Use a graphing calculator to solve the equation $-3\cos t = 1$ in the interval from $0 \le \theta \le 2\pi$. Round to the nearest hundredth.

16. The equation models the height h in centimeters after t seconds of a weight attached to the end of a spring that has been stretched and then released.

$$h = 7\cos\left(\frac{\pi}{3}t\right)$$

   a. Solve the equation for t.

b. Find the times at which the weight is first at a height of 1 cm, of 3 cm, and of 5 cm above the rest position. Round your answers to the nearest hundredth.

c. Find the times at which the weight is at a height of 1 cm, of 3 cm, and of 5 cm below the rest position for the second time. Round your answers to the nearest hundredth.

17.

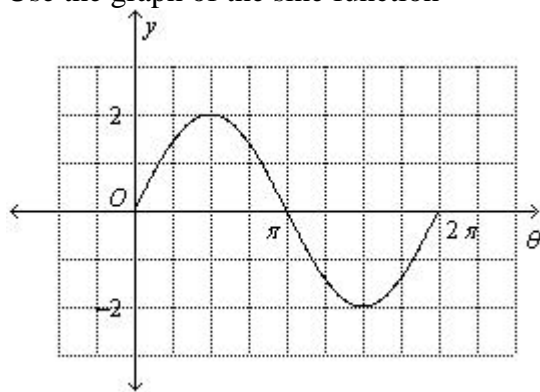Consider the graph of the cosine function shown below.
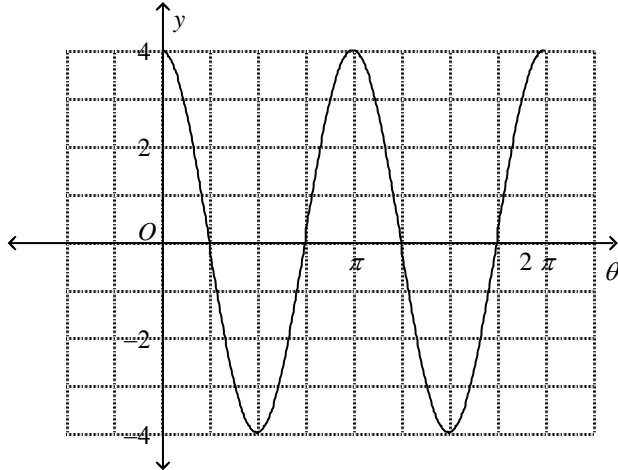
a. Find the period and amplitude of the cosine function.

b. At what values of θ for $0 \le \theta \le 2\pi$ do the maximum value(s), minimum values(s), and zeros occur?

18.

Use the graph of the sine function $y = 2 \sin \theta$ shown below.

a. How many cycles occur in the graph?
b. Find the period of the graph.
c. Find the amplitude of the graph.

19. Verify the Pythagorean Identity.

$$1 + \cot^2 \theta = \csc^2 \theta$$

20.
Howard is flying a kite and wants to find its angle of elevation. The string on the kite is 32 meters long and the kite is level with the top of a building that he knows is 28 meters high.
To the nearest tenth of a degree, find the angle of elevation. **Show your work**.

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Convert PDF to text
Automatic Table of Contents generation
Support for XP Fast User Switching and multiple user sessions
Standard PDF Encryption (restricted printing, modifying, copying text and images)
Support for Optimized PDF
Support for custom page sizes

Option to attach PDFs to email after creation
Automatic text summarization of PDF documents
Easy integration with document management and Workflow systems
n-Up printing
Automatic page numbering
Simple Programmers Interface
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Custom resizing of PDF output
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Introduction

The **Virtual Reality Modeling Language** (VRML) is a language for describing multi-participant interactive simulations -- virtual worlds networked via the global Internet and hyperlinked with the World Wide Web. All aspects of virtual world display, interaction and internetworking can be specified using VRML. It is the intention of its designers that VRML become the standard language for interactive simulation within the World Wide Web.

The first version of VRML allows for the creation of virtual worlds with limited interactive behavior. These worlds can contain objects which have hyperlinks to other worlds, HTML documents or other valid MIME types. When the user selects an object with a hyperlink, the appropriate MIME viewer is launched. When the user selects a link to a VRML document from within a correctly configured WWW browser, a VRML viewer is launched. Thus VRML viewers are the perfect companion applications to standard WWW browsers for navigating and visualizing the Web. Future versions of VRML will allow for richer behaviors, including animations, motion physics and real-time multi-user interaction.

This document specifies the features and syntax of Version 1.0 of VRML.

VRML Mission Statement

The history of the development of the Internet has had three distinct phases; first, the development of the TCP/IP infrastructure which allowed documents and data to be stored in a proximally independent way; that is, Internet provided a layer of abstraction between data sets and the hosts which manipulated them. While this abstraction was useful, it was also confusing; without any clear sense of "what went where", access to Internet was restricted to the class of sysops/net surfers who could maintain internal cognitive maps of the data space.

Next, Tim Berners-Lee's work at CERN, where he developed the hypermedia system known as **World Wide Web**, added another layer of abstraction to the existing structure. This abstraction provided an "addressing" scheme, a unique identifier (the Universal Resource Locator), which could tell anyone "where to go and how to get there" for any piece of data within the Web. While useful, it lacked dimensionality; there's no *there* there within the web, and the only type of navigation permissible (other than surfing) is by direct reference. In other words, I can only tell you how to get to the VRML Forum home page by saying, "http://www.wired.com/", which is not human-centered data. In

fact, I need to make an effort to remember it at all. So, while the World Wide Web provides a retrieval mechanism to complement the existing storage mechanism, it leaves a lot to be desired, particularly for human beings.

Finally, we move to "perceptualized" Internetworks, where the data has been sensualized, that is, rendered sensually. If something is represented sensually, it is possible to make sense of it. VRML is an attempt (how successful, only time and effort will tell) to place humans at the center of the Internet, ordering its universe to our whims. In order to do that, the most important single element is a standard that defines the particularities of perception. Virtual Reality Modeling Language is that standard, designed to be a *universal description language for multi-participant simulations*.

These three phases, storage, retrieval, and perceptualization are analogous to the human process of consciousness, as expressed in terms of semantics and cognitive science. Events occur and are recorded (memory); inferences are drawn from memory (associations), and from sets of related events, maps of the universe are created (cognitive perception). What is important to remember is that the map is **not** the territory, and we should avoid becoming trapped in any single representation or world-view. Although we need to *design to avoid disorientation*, we should always push the envelope in the kinds of experience we can bring into manifestation!

This document is the living proof of the success of a process that was committed to being open and flexible, responsive to the needs of a growing Web community. Rather than re-invent the wheel, we have adapted an existing specification (Open Inventor) as the basis from which our own work can grow, saving years of design work and perhaps many mistakes. Now our real work can begin; that of rendering our noospheric space.

History

VRML was conceived in the spring of 1994 at the first annual World Wide Web Conference in Geneva, Switzerland. Tim Berners-Lee and Dave Raggett organized a Birds-of-a-Feather (BOF) session to discuss Virtual Reality interfaces to the World Wide Web. Several BOF attendees described projects already underway to build three dimensional graphical visualization tools which interoperate with the Web. Attendees agreed on the need for these tools to have a common language for specifying 3D scene description and WWW hyperlinks -- an analog of HTML for virtual reality. The term Virtual Reality Markup Language (VRML) was coined, and the group resolved to begin specification work after the conference. The word 'Markup' was later changed to 'Modeling' to reflect the graphical nature of VRML.

Shortly after the Geneva BOF session, the www-vrml mailing list was created to discuss the development of a specification for the first version of VRML. The response to the list invitation was overwhelming: within a week, there were over a thousand members. After an initial settling-in period, list moderator Mark Pesce of Labyrinth Group announced his intention to have a draft version of the specification ready by the WWW Fall 1994 conference, a mere five months away. There was general agreement on the list that, while this schedule was aggressive, it was achievable provided that the requirements for the first version were not too ambitious and that VRML could be adapted from an existing solution. The list quickly agreed upon a set of requirements for the first version, and began a search for technologies which could be adapted to fit the needs of VRML.

The search for existing technologies turned up a several worthwhile candidates. After much deliberation the list came to a consensus: the Open Inventor ASCII File Format from Silicon Graphics, Inc. The Inventor File Format supports complete descriptions of 3D scenes with polygonally rendered objects, lighting, materials, ambient properties and realism effects. A subset of the Inventor File Format, with extensions to support networking, forms the basis of VRML. Gavin Bell of Silicon Graphics has adapted the Inventor File Format for VRML, with design input from the mailing list. SGI has publicly stated that the file format is available for use in the open market, and have contributed a file format parser into the public domain to bootstrap VRML viewer development.

A Graphical Representation of Inverse VRML Uptake

Change the number in red below to adjust for download rate and/or bandwidth.

| 1 | The number 1 represents an engineer with an "average" cube *

CF	Min	fsw	Air	EANx 32%	EANx 36%
80.0	149.12	0			
61.4	114.43	10			
49.8	92.846	20			
41.9	78.102	30	180		
36.2	67.402	40	120		
31.8	59.275	50	80.0	147.0	192.0
28.4	52.9	60	57.0	92.0	123.0
25.6	47.774	70	40.0	65.0	79.0
23.4	43.543	80	30.0	49.0	59.0
21.5	40.001	90	24.0	37.0	45.0
19.9	37	100	19.0	30.0	35.0
18.5	34.409	110	16.0	25.0	29.0
17.3	32.154	120	13.0	20.0	n/a
16.2	30.178	130	10.0	17.0	n/a
15.1	28.202	140	8.0	n/a	n/a

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① Inkomster - Tjänst

Ange belopp i hela kronor

1.1 Lön, förmåner, sjukpenning m.m.	25 830
1.2 Kostnadsersättningar	
1.3 Allmän pension och tjänstepension m.m.	
1.4 Privat pension och livränta	
1.5 Andra inkomster som inte är pensions-grundande	
1.6 Inkomster, t.ex. hobby, som du själv ska betala egenavgifter för	
1.7 Inkomst från bilaga K10, K10A och K13	

② Avdrag - Tjänst

2.1 Resor till och från arbetet *Du får avdrag endast för den del som överstiger 10 000 kr. Fyll i totalbeloppet.*	
2.2 Tjänsteresor	
2.3 Tillfälligt arbete, dubbel bosättning och hemresor	
2.4 Övriga utgifter *Du får avdrag endast för den del som överstiger 5 000 kr. Fyll i totalbeloppet.*	

③ Allmänna avdrag

3.1 Socialförsäkringsavgifter enligt EU-förordningen m.m.	

④ Skattereduktioner

4.1 Rotarbete enligt meddelande eller som förmån	
4.2 Rutarbete enligt meddelande eller som förmån	
4.3 Underlag för skattereduktion för förnybar el. *Ange antal kilowattimmar.*	

⑤ Underlag för fastighetsavgift

Ange belopp i hela kronor

5.1 Småhus/ägarlägenhet hel avgift 0,75 %	
5.2 Småhus/ägarlägenhet halv avgift 0,375 %	

⑥ Underlag för fastighetsskatt

6.1 Småhus/ägarlägenhet: tomtmark, byggnad under uppförande 1,0 %	

⑦ Inkomster - Kapital

Ange belopp i hela kronor

7.1 Schablonintäkter	167
7.2 Ränteinkomster, utdelningar, vinst från bilaga K4 avsnitt C m.m.	148
7.3 Överskott vid uthyrning av privatbostad	
7.4 Vinst fondandelar m.m. Vinst från bilaga K4 avsnitt A och B, K10, K10A, K11, K12 avsnitt B och C och K13.	19 142
7.5 Vinst ej marknadsnoterade fondandelar m.m. Vinst från bilaga K4 avsnitt D, K12 avsnitt B och C och K15A/B m.m.	
7.6 Vinst från bilaga K5 och K6. Återfört uppskov från bilaga K2.	
7.7 Vinst från bilaga K7 och K8	

⑧ Avdrag - Kapital

8.1 Ränteutgifter m.m. Förlust från bilaga K4 avsnitt C m.m.	
8.3 Förlust fondandelar m.m. Förlust från bilaga K4 avsnitt A, K10, K12 avsnitt B och C och K13.	
8.4 Förlust ej marknadsnoterade fondandelar. Förlust från bilaga K4 avsnitt D, K10A, K12 avsnitt B och C och K15A/B.	
8.5 Förlust från bilaga K5 och K6	
8.6 Förlust från bilaga K7 och K8	
8.7 Investeraravdrag från bilaga K11	

⑨ Utländsk försäkring - Avkastningsskatt

9.1 Skatteunderlag för kapitalförsäkring	
9.2 Skatteunderlag för pensionsförsäkring	

Inkomstdeklaration enligt lagen SFS 2011:1244

INK1M-1-26-2016P4

SKV 2000 26 sv tin 01

Punkt 10-16 gäller enbart näringsverksamhet

⑩ Näringsverksamhet

	Belopp från NE	Belopp från N3A
10.1 Överskott av aktiv näringsverk-samhet		
10.2 Underskott av aktiv närings-verksamhet	Belopp från NE	Belopp från N3A
10.3 Överskott av passiv närings-verksamhet	Belopp från NE	Belopp från N3A
10.4 Underskott av passiv närings-verksamhet	Belopp från NE	Belopp från N3A
10.5 Inkomster för vilka uppdragsgivare ska betala social-avgifter	Bruttoinkomst	Kostnader
10.6 Underlag för sär-skild löneskatt på pensionskost-nader	Eget	Anställdas
10.7 Underlag för avkastningsskatt på pensionskostnader		

⑪ Räntefördelning

11.1 Positiv räntefördelning *Belopp från NE (ruta R30) eller N3A (p.15).*	
11.2 Negativ räntefördelning *Belopp från NE (ruta R31) eller N3A (p.16).*	

⑫ Underlag för expansionsfondsskatt

12.1 Ökning av expansionsfond *Belopp från NE (ruta R36) eller N3A (p.21).*	
12.2 Minskning av expansionsfond *Belopp från NE (ruta R37) eller N3A (p.22).*	

⑬ Nedsättning av egenavgifter

13.1 Regionalt nedsättningsbelopp, endast näringsverksamhet i stödområde	

⑭ Allmänna avdrag (näringsverksamhet)

14.1 Underskott av aktiv näringsverksamhet som du får kvitta mot förvärvsinkomst *Underskott som du redovisar här ska inte redovisas vid punkt **10.2***	

⑮ Underlag för fastighetsavgift

15.1 Hyreshus: bostäder 0,3 %	
15.2 Hyreshus: bostäder 0,15 %	

⑯ Underlag för fastighetsskatt

16.1 Hyreshus: tomtmark, bostäder under uppförande 0,4 %	
16.2 Hyreshus: lokaler 1,0 %	
16.3 Industri och elproduktionsenhet, värmekraftverk 0,5 %	
16.4 Elproduktionsenhet: vattenkraftverk 2,8 %	
16.5 Elproduktionsenhet: vindkraftverk 0,2 %	

☐	Kryssa här om din näringsverksamhet har upphört under 2016

⑰ Övriga upplysningar

☐ Kryssa här om du begär omfördelning av rot-/rutavdrag. Under "Övrigt" lämnar du uppgift om belopp, hur (till eller från) och med vem (personnummer) omfördelningen ska göras.

☐ Kryssa här om någon kontrolluppgift är felaktig/saknas. Under "Övrigt" lämnar du uppgift om utbetalarens namn, adress, ersättningens storlek och avdragen skatt.

☐ Kryssa här om du har haft inkomst från utlandet.

☐ Kryssa här om du begär avräkning av utländsk skatt. Om du redan har fått avräkning ska du inte kryssa, se din preliminära skatteuträkning.

Under "Övrigt" lämnar du uppgift om typ av inkomst (t.ex. lön eller utdelning), från vilket land, inkomstens storlek och betald utländsk skatt i SEK.

Här kan du lämna övriga uppgifter som inte finns på blanketten, och som Skatteverket behöver för att fastställa din slutliga skatt, t.ex. om du begär ackumulerad inkomst. Du behöver inte skriva att du bifogar bilagor eller att du lämnar bilagor elektroniskt.

Övrigt

⑱ Underskrift

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