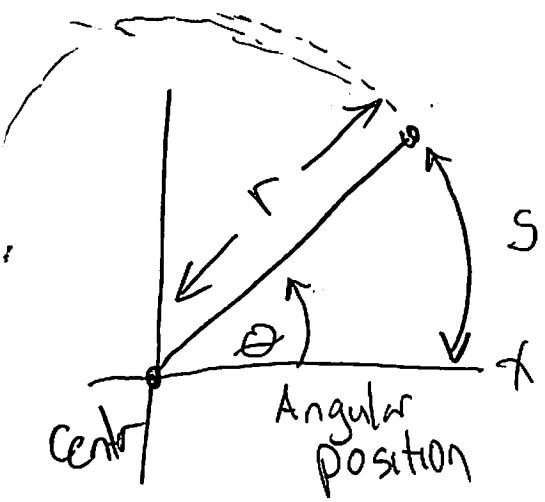
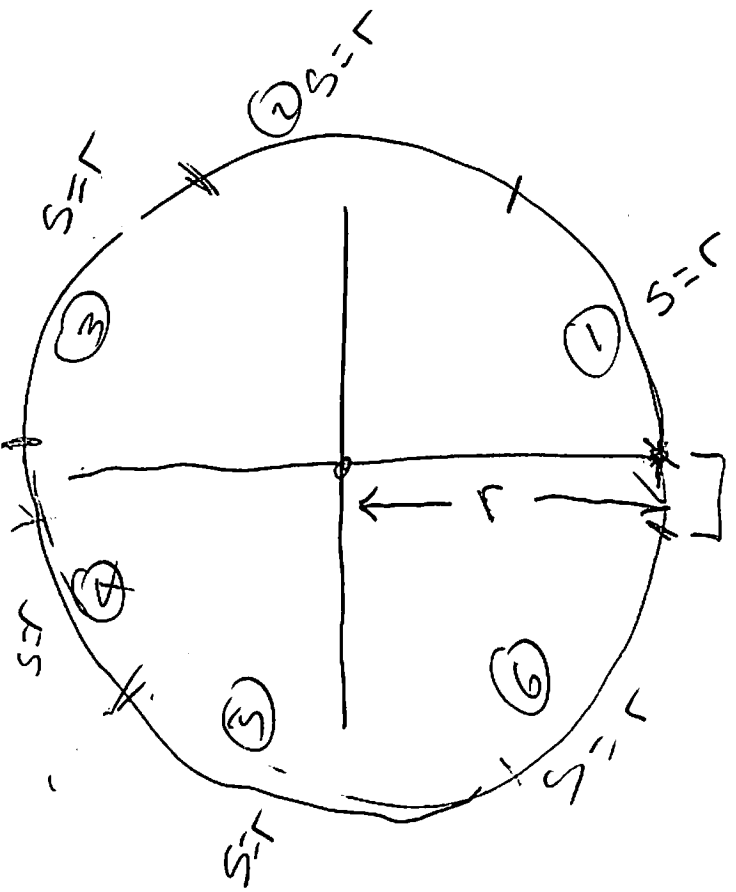


measure counterclockwise

$$\theta(\text{radians}) = \frac{s}{r} = \frac{\text{arc length}}{\text{radius}}$$

So, an angle of 1 radian has an arc length, $s = r$

* Where is this in degrees?
57.3



$$C = 2\pi = 360^\circ$$

$$= \frac{44}{7} = 6.28$$

$$\text{Circum} = \frac{s}{r} = \frac{2\pi r}{r} = 2\pi \text{ rad}$$

(s: travel length; r: radius)

This is a faculty time certification email example:

To: Budget Manager
From: Alvera Janis
Subject: Certification of time for Billy Martinez – PP#4

I, *Alvera Janis*, certify that *Billy Martinez* is making acceptable progress on his Research Assistantship project on *March 10 – 24, 2016* as indicated by his logbook (attached). By sending this email, I certify that I have verified that *Billy Martinez* has completed daily tasks as indicated in his digital logbook and has uploaded copies of papers found, GIS data, laboratory sheets, spreadsheets, and R Markdown documents to his Google Drive shared folder.

Other work-related questions: Our research assistant pay schedule is consistent with prevailing wages at OLC and on the Pine Ridge reservation. The Registrar determines class status and RAs are responsible for initiating pay raises based on changes in class status with the Budget Manager; phone: 605-455-6124, email: aprovost@olc.edu.

Piya Wiconi is the designated place of work for RAs, and RAs are required to work Fridays at Piya Wiconi. RAs **may be allowed** to work at College Centers on other days **pending** both mentor and TCUP PI **approval**. Some important provisions to consider are:

- Part-time employees are limited to 990 hours per year: Oct 1 – Sept 30. RAs are limited to 19 hours per week (38 hours per pay period) during the academic year and 35 hours per week (70 hours per pay period during Spring and Christmas breaks;
- A 30-minute lunch break is required for work greater than 4 hours.
- Hours without documentation will not be submitted for payment. A completed **signed** timesheet needs to on Alicia Provost's desk by close of business on Friday, or the timesheet may not be submitted for payment for that pay period.

Research assistantships are intended to **supplement** your academic experience. In practical terms RAs acknowledge the following practices are prohibited and represent a breach of conduct:

- Skipping classes to work on your research/outreach.
- Submitting hours for attendance on class-related fieldtrips.
- Submitting hours to complete homework

Mileage will not be paid to research assistants traveling to or from their place of work at Piya Wiconi, to the field or alternative work location without prior **written** authorization from the TCUP PI.

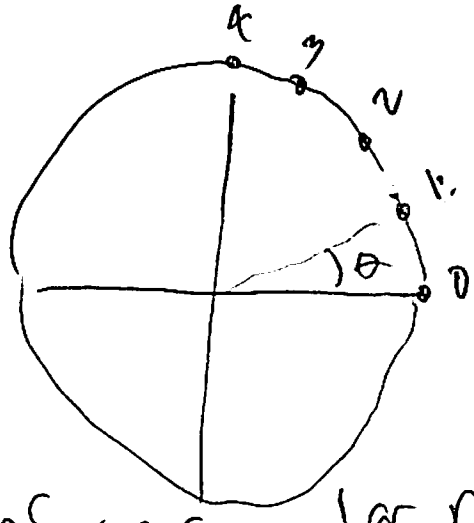
Research Assistant Conduct: As OLC employees student research assistants follow OLC policy for employee conduct including acting respectfully to other staff and supervisors (who include all full-time STEM staff), honest reporting of time, and using funds obligated for travel in an appropriate way, and working on activities related to STEM departmental goals and objectives (e.g. non-work related internet use, Facebook, Twitter, IM clients, and excessive use of texting and cell

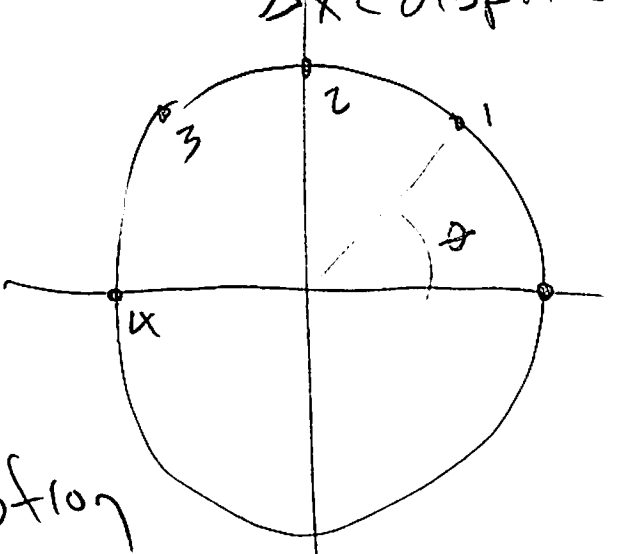
Uniform Linear motion

0 1 2 3 4 0 1 7 3 4

$\Delta x_2 = 2\Delta x_1$

Δx = displacement





Uniform Circular motion

angular velocity $\omega = \frac{\text{angular disp}}{\text{time interval}} = \frac{\Delta\theta}{\Delta t}$

Omega

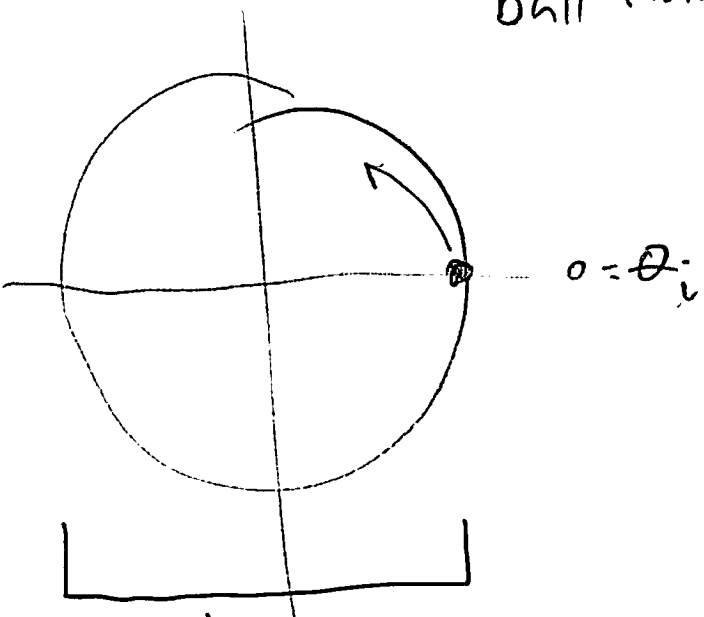
linear velocity $v = \frac{\text{linear Disp}}{\text{time interval}} = \frac{\Delta x}{\Delta t}$

Appendix 1. Research Mentors and Sub-disciplines

MENTOR	DISCIPLINE	SUBDISCIPLINE	EMAIL
CHARLES "JASON" TINANT	SEM PreEngineering	Water Resources	jtinant@olc.edu
	Earth Science	Hydrology	
		Ecosystem Ecology	
JAMES "JIM" SANOVIA	SEM PreEngineering	Sustainability	jsanovia@olc.edu
	Earth Science	GIS Remote Sensing	
ALESSANDRA "ALE" HIGA	Ecology	Community Ecology	ahiga@olc.edu
	Biology	Wildlife	
REQUAW WEST	Biology	Parasitology	rwest@olc.edu
HANNAN LAGARRY	Earth Science	Geology	hlagarry@olc.edu
		Paleontology	
DEIG SANDOVAL	Chemistry	Organic	deig@olc.edu
		Analytical	
		Device Design	
JASON FUNK	Life Science		jfunk@olc.edu
MERLE "MISTY" BRAVE	Science Education	STEM Outreach	mbrave@olc.edu
JAMES "JIM" DUDEK	Information Technology		jdudek@olc.edu

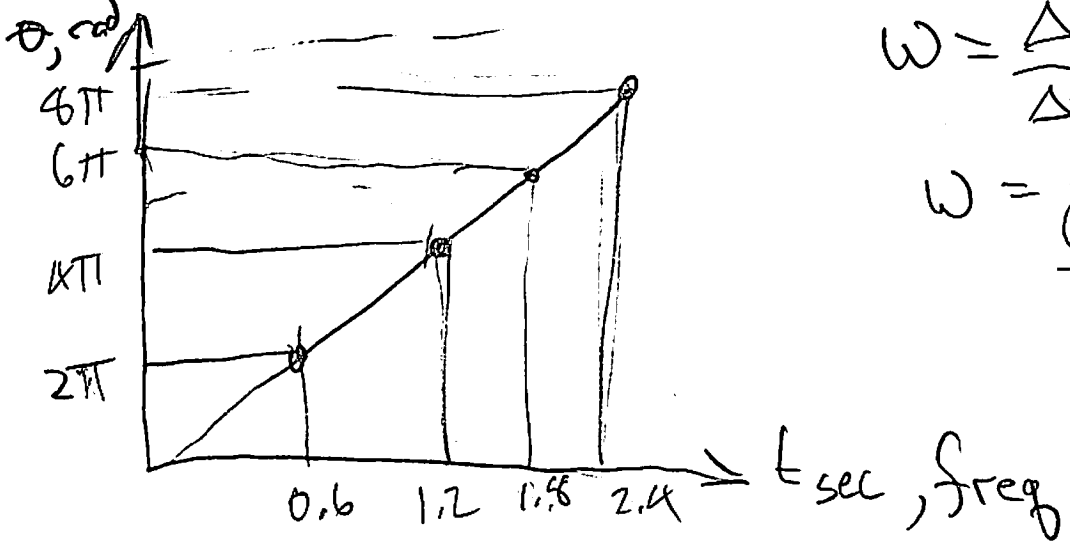
Roulette Wheel

ball travels 2 revolutions in 1.2 sec



What is its angular velocity?

What is the position @ t = 2.0 sec?



$$\omega = \frac{\Delta\theta}{\Delta t} = \frac{4\pi\ \text{rad}}{1.2\ \text{sec}}$$

$$\omega = \frac{4(22)}{(1.2)(7)} = 10.47\ \text{rad}$$

$$\text{rad} = 57.3^\circ$$

$$\omega = \frac{600^\circ}{\text{sec}}$$

Angular position @ t = 2.0 sec

$$\theta_f = \theta_i + \omega \Delta t$$

$$= 0 + 10.47\frac{\text{rad}}{\text{sec}} \cdot 2.0\ \text{sec} = 20.94\ \text{rad}$$

14.12 Engineering Physics
14.13 Engineering Science
14.27 Systems Engineering
30.06 Systems Science and Theory
14.11 Engineering Mechanics
14.19 Mechanical Engineering
14.06 Ceramic Sciences and Engineering
14.18 Materials Engineering
14.20 Metallurgical Engineering
14.28 Textile Sciences and Engineering
14.31 Materials Science
40.9999 Physical Sciences, Other
14.21 Mining and Mineral Engineering
14.23 Nuclear Engineering
14.25 Petroleum Engineering
14.01 Engineering, General
14.22 Naval Architecture and Marine Engineering
14.24 Ocean Engineering
14.99 Engineering, Other

Environmental Science
03.0103 Environmental Studies
03.0104 Environmental Science

Geosciences
40.06 Geological and Earth Sciences/Geosciences

Life/Biological Sciences
26.1303 Evolutionary Biology
26.0806 Human/Medical Genetics
26.05 Microbiological Sciences and Immunology
26.0507 Immunology
26.0504 Virology
26.0503 Medical Microbiology and Bacteriology
26.0608 Neuroscience
19.05 Foods, Nutrition, and Related Services
30.1901 Nutritional Sciences
26.0910 Pathology/Experimental Pathology
26.1001 Pharmacology
26.1004 Toxicology
26.0707 Animal Physiology. (NEW)

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rev	π rad	rad
1	2π rad	6.28 rad
2	4π rad	12.56 rad
3	6π rad	18.84 rad
4	8π rad	25.12 rad

position 20.94 rad

$$\frac{20.94 \text{ rad}}{2\pi} = 3.33 \times 2\pi \text{ (rad)}$$

$$= 3 \times 2\pi \text{ rad} + 0.33 \times 2\pi$$

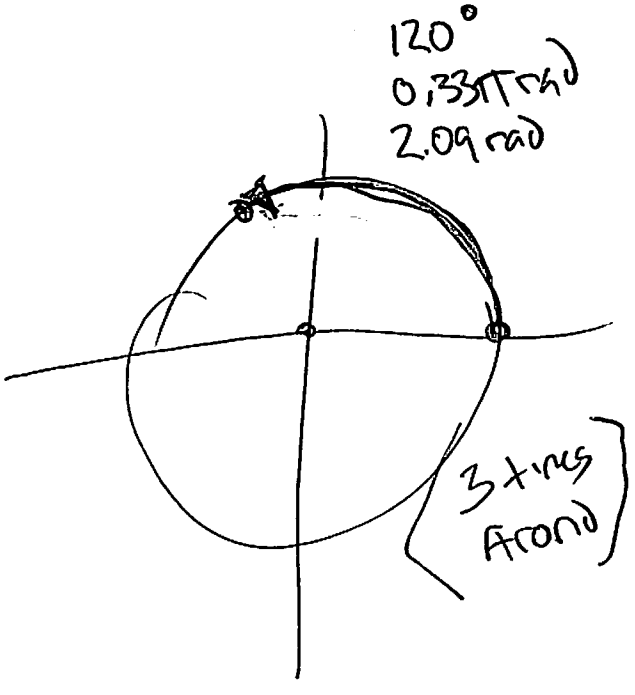
$$= 3 \text{ revolutions} + 0.33 \text{ revs}$$

$$= 3 \text{ revs} + 0.33 \cdot 2 \cdot \frac{22}{7} \text{ rad}$$

$$= 3 \text{ revs} + 2.09 \text{ rad}$$

$$= 3 \text{ revs} + 2.09 \times \frac{57.3^\circ}{\text{rad}}$$

$$= 3 \text{ revs} + 120^\circ$$



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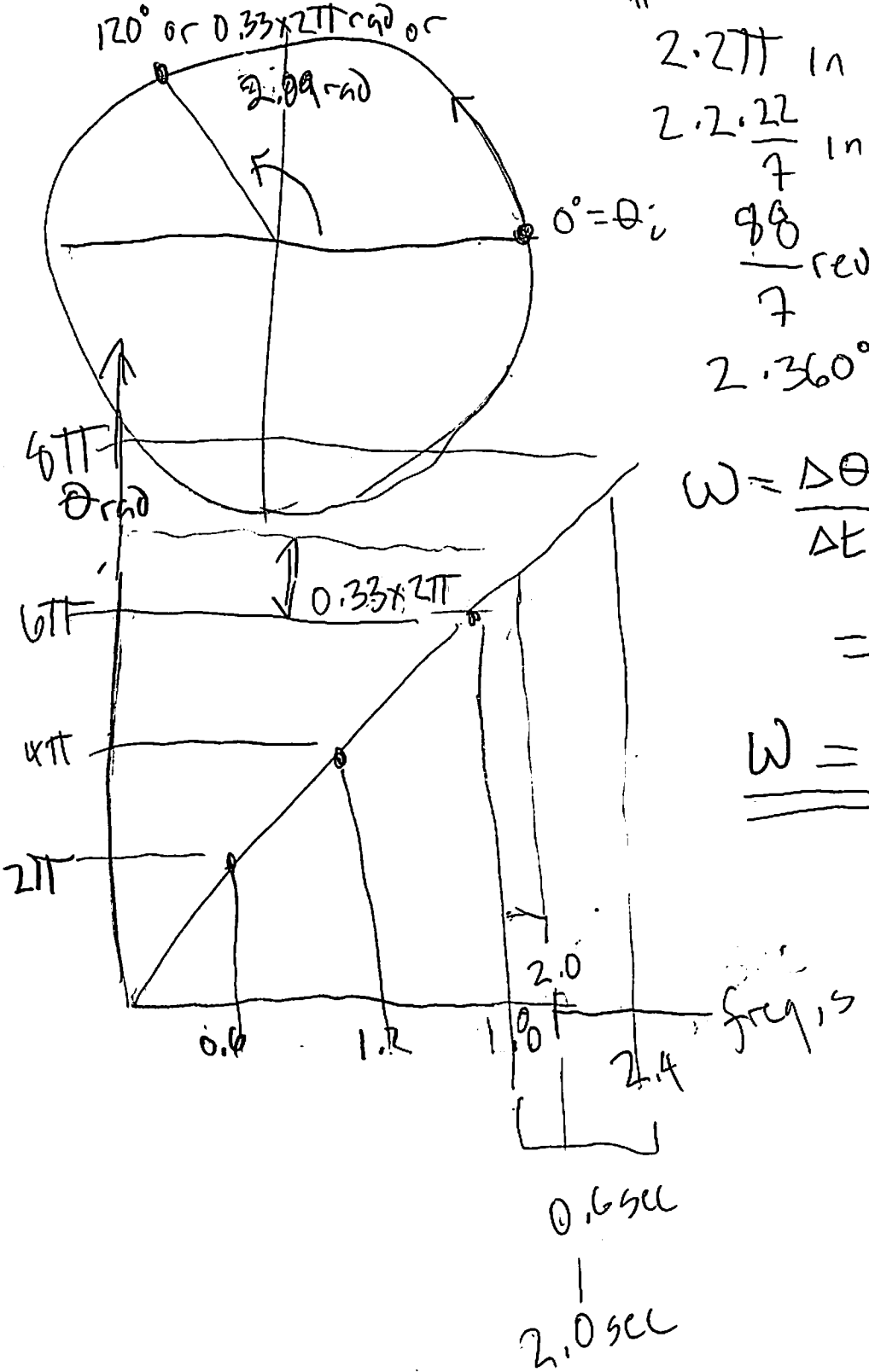
Roulette Wheel



ball 2 revs in 1.2 sec

$2 \cdot 2\pi$ in 1.2 sec

$2 \cdot 2 \cdot \frac{22}{7}$ in 1.2 sec

$\frac{88}{7}$ revs in 1.2 sec

$2 \cdot 360°$ in 1.2 sec

$$\omega = \frac{\Delta\theta}{\Delta t} = \frac{4\pi \text{ rad}}{1.2 \text{ sec}}$$

$$= \frac{4(3.14) \text{ rad}}{1.2 \text{ sec}}$$

$$\omega = 10.47 \text{ rad/sec}$$

At 2 sec
Where is it?

RA Application Section 2. Additional Required Information:

New and Returning Research Assistants: Please provide the following information. Note that OLC work-related forms are provided at *https://warehouse.olc.edu/local_links/personnel/docs/*

- Signed W-4 and I-9 forms
- Signed Confidentiality Agreement form;
- Substance Abuse form (a pre-employment substance abuse test is required);
- Copy of your driver's license and social security card (must be readable);
- Photograph in .jpg format, preferably an "in action" picture of you in lab or field;
- Two recommendation letters from outside of the MST STEM Department discussing your academic attributes and how you will benefit from being a Research Assistant.
- Please provide a current official transcript from the Registrar and a Declaration of Major form– *your cost is $5.*
- A 4-year Degree/Career Plan showing your progress towards a Bachelor of Science (B.S.) Degree in a Science, Technology, Engineering or Mathematics (STEM) field. *The ANSL-AMP website has degree/career plan examples.*
- Acknowledgement that you understand and agree to Fall 2016 RA Guidelines (see below)