

**FIELD ARTILLERY
BASIC OFFICER LEADER
COURSE**

SMARTPACK

FORT SILL, OKLAHOMA
December 2018

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REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY

BRAVO BATTERY, 1ST BATTALLION, 30TH FIELD ARTILLERY
840 GERONIMO ROAD
FORT SILL, OKLAHOMA 73503

ATSF-BFB

18 September 2018

MEMORANDUM FOR ALL STUDENTS ASSIGNED TO BRAVO BTRY, 1-30TH FA BN

SUBJECT: Bravo BTRY, 1-30TH FA BN Standards

1. Physical Training (PT):

a. Time: PT is conducted from 0630-0730, Monday through Friday.

(1) No appointments or activities will be scheduled during PT Times without prior Cadre and Battery Commander approval.

b. Location: Initial PT formation will be held on the south side of Snow Hall. Park in the authorized parking areas.

c. Uniform: The daily Army Physical Fitness Uniform (APFU) will be determined by the First Sergeant of Bravo BTRY, 1-30th FA BN. Changes to the uniform are disseminated through Cadre and Student Chain of Command (CoC). Students will NOT make their own changes to uniform without authorization from the BTRY First Sergeant or Cadre.

(1) APFU wear will be IAW AR 670-1.

(2) PT Belts: Students will purchase and wear reflective, neon yellow PT belts with rank affixed on the left side of the Velcro 'buckle'.

2. Army Physical Fitness Test (APFT) and Height/Weight (HT/WT) Assessment:

a. Army Physical Fitness Test (APFT): The APFT is the Army's standard measurement of a Soldier's fitness. Students will take two APFTs during FA BOLC-B.

(1) A 'diagnostic' APFT will be given within the first five days of the FA BOLC-B course. A Record APFT will be given NLT seven days prior to graduation.

(2) APFT standards are outlined in FM 7-22

(3) HT/WT found in AR 600-9

b. Height and Weight Assessment (HT/WT): The Army's Height and Weight Assessment measures a Soldier's Body Fat Percentage to determine if a Soldier meets

Army Height and Weight standards. Students will conduct two HT/WT Assessments during FA BOLC-B.

(1) The first HT/WT Assessment will be given within the first five days of the FA BOLC-B course. The second will be given NLT seven days prior to graduation.

3. Bugle Calls: FT Sill has a series of Bugle Calls that are broadcast over the post's public address system. Each Bugle Call has specific meaning and denotes actions for all FT Sill personnel.

a. First Call: Sounds at 0625, Monday through Friday. Gives a five minute warning prior to Reveille (start of PT). Students should be in PT Formation at First Call in order to have the Student Chain of Command collect accountability reports

b. Reveille: Sounds at 0630, seven days a week, and signals the beginning of PT. During Reveille, Soldiers will stop all activity, face McNair Hall, or the sound, stand at attention, and present arms (salute).

c. Last Call: Sounds at 0730, Monday through Friday, and signals the end of PT. Students will not break from PT formation prior to Last Call.

d. Retreat: Sounds at 1700, seven days a week, to signal the end of the duty day. Soldiers will stop all activity, face McNair Hall, or the sound, and salute the flag during this time. If driving, soldiers need to safely pull to the shoulder, exit their vehicle, and salute the flag.

4. Uniform:

a. PT Uniform will be in accordance with AR 670-1, modified by the Bravo BTRY, 1-30th FA 1SG. Changes will be based on weather (temperature and precipitation) and disseminated through the Student Chain of Command. **Students will wear a reflective, neon yellow PT Belt with rank.**

b. Duty Uniform will be the Army Combat Uniform (ACU) with the Operational Camouflage Pattern (OCPs). This uniform is commonly known as 'multi-cam', and will be worn in accordance with AR 670-1. All classes and required activities will be conducted in the Duty Uniform unless otherwise noted by Cadre.

c. Dress Uniform will be the Army Service Uniform (ASU). ASUs will be worn to various events during FA BOLC-B, including graduation. Unit awards are annotated in Annex 1 and Annex 4 of the Welcome Packet. Students will need to purchase the ASU Service Cap.

d. TA-50 (Field Gear): Students will be issued TA-50 field equipment from the Central Issue Facility. Students are responsible for maintaining all issued TA-50.

e. Field Load Carrier (FLC) and Advanced Combat Helmet (ACH: FLC/ACH will be worn any time Student conduct training in the field. FLC/ACH setups are shown in Annex 5. No other adjustments or additional accessories are authorized to be worn on the FLC/ACH.

5. Fort Sill Blue Book: Students will carry a copy, physical or digital, of the FT Sill Bluebook at all times. Link to the PDF is below

6. AR 670-1 is the Army Regulation for all additional uniform questions.

7. Resources:

a. Bluebook: [http://sillwww.army.mil/docs/2017/FT%20Sill%20Bluebook%202017%20\(05%20DEC%202017%20Signed\).pdf](http://sillwww.army.mil/docs/2017/FT%20Sill%20Bluebook%202017%20(05%20DEC%202017%20Signed).pdf)

b. AR 670-1: <https://www.army.mil/e2/c/downloads/337951.pdf>

c. AR 600-9: http://www.armyg1.army.mil/hr/bodyComposition/docs/AR600_9_28-June-2013.pdf

THOMAS W. STEVENSON
MAJ, FA
Commanding



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840 GERONIMO ROAD
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18 September 2018

MEMORANDUM FOR ALL STUDENTS ASSIGNED TO BRAVO BTRY, 1-30TH FA BN

SUBJECT: Field Artillery BOLC-B Student In-Processing Overview

1. Common Access Card (CAC):

a. All in processing requires a CAC. To obtain your CAC, you need to take a copy of your orders to the closest military installation's DEERS office. To locate the nearest installation and DEERS office, access the online RAPIDS Appointment Scheduler (website annotated below on line 'd'). The RAPIDS Appointment Scheduler is searchable by zip code. Find the closest facility and make an appointment to obtain your CAC.

b. The FT Sill DEERS office is located at Building 4700, 4700 Mow-Way Rd, Fort Sill, OK 73503. Phone: (580) 442-3217

c. Required Forms: 1x copy of your DA Form 31 and 1x copy of your orders

d. Link: <https://rapids-appointments.dmdc.osd.mil/appointment/default.aspx?AspxAutoDetectCookieSupport=1>

2. Medical:

a. Individual Medical Readiness Status is available for review at Army Knowledge Online (AKO, www.us.army.mil) under the My Medical Readiness Tab. The Medical Readiness Tab will display your individualized Medical Status and provide details on what is deficient.

b. Medical in-processing consists of four requirements; the Periodic Health Assessment, immunizations, optometry, and dental.

(1) Periodic Health Assessment (PHA): The PHA is a yearly requirement that tracks a Soldier's health and medical issues over the course of their careers. The PHA is comprised of two parts, an online health survey and an in person medical screening with a Physician's Assistant. You **must** complete the online health survey on your own time prior to the FA BOLC-B Medical Screening Day.

(a) Online PHA Survey: Log on to AKO (www.us.army.mil) and access the My Medical Readiness Tab. In the My Medical Readiness Tab, click on the MEDPROS link. The MEDPROS link will open the MEDPROS homepage. On the MEDPROS Homepage find the Periodic Health Assessment (PHA) Survey Link. Click the PHA Survey Link and follow the instructions to complete the survey.

(b) In Person Medical Screening: Medical Screenings have been scheduled for all FA BOLC-B Students, and are part of the course schedule. You **do not** need to schedule a medical screening.

(2) Immunizations: Students are required to receive the Army Standard immunization battery. Students will receive the immunization battery during Medical In-processing. You **do not** need to schedule an immunization screening and battery, they are part of the course schedule.

(3) Optometry: Students are required to conduct a vision screening. Students who do not meet Army Vision Standards will be issued eyewear. Vision Screenings have been scheduled for all FA BOLC-B Students, and are part of the course schedule. You **do not** need to schedule a vision screening.

(a) Location: RAHC, 4301 Wilson St, Fort Sill, OK, 73503,

(b) Phone: (833) 286-3732

(4) Dental: All students are required to have dental x-rays on file and a dental screening conducted. Dental screenings and x-rays have been scheduled for all FA BOLC-B Students, and is part of the course schedule. You **do not** need to schedule a dental screening.

(a) The Student Dental Clinic is the Allen Dental Clinic.

(b) Location: Allen Dental Clinic, 6037 Bessinger St, Fort Sill, OK, 73503,

(c) Phone: (580) 442-6106

3. Adjutant General In processing

a. Adjutant General (AG) in processing is comprised of three sections; Student Records, Servicemen's Group Life Insurance filing, and Department of Defense Form 93 filing.

(1) Student Records in processing consists of a brief from FT Sill Student Records division personnel. Students will fill out the forms provided at the brief. The brief is scheduled for all FA BOLC-B Students and is part of the course schedule.

(2) Servicemen's Group Life Insurance (SGLI): SGLI is a life insurance program offered by the Department of Defense. Students apply for SGLI in two phases, an online portion that includes filling out SGLI application forms and an in person verification.

(3) Department of Defense Form (DD Form) 93: DD Form 93 is the casualty notification form. The Army will reference this form in order to send a Casualty Notification Team to your residence to inform your spouse or closest relative of your status. Students are required to complete DD Form 93 during FA BOLC-B in processing.

b. Servicemen Group Life Insurance (SGLI):

- (1) SGLI is conducted at the Student Record Office in Building 4700.
- (2) Location: Building 4700, 4700 Mow-Way Rd, Fort Sill, OK, 73503
- (3) Forms Required: DA Form 31 and Orders

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MISSION, GOAL, AND 5 REQUIREMENTS FOR ACCURATE PREDICTED FIRE

Memorize everything in italics

a. **Mission**. *The mission of the firing battery is to destroy, neutralize, or suppress the enemy by cannon, rocket, and missile fires and to help integrate all fire supports assets into combined arms operations.*

(1) Destroy. 30% is the requirement for destruction fires. It is not higher because it will take an area fire weapon an excessive amount of ammunition to achieve a higher casualty rate. 30% casualties will render a unit effectively destroyed and unable to accomplish its mission without troop replacement and re-equipment.

(2) Neutralize. 10% casualties achieves neutralization of a target. The target can get back into the fight and is only taken out temporarily. The leader of the unit is put in a decision point on how to proceed.

(3) Suppress. Technically 3%, but the qualitative assessment is more important the quantitative requirement. Suppression fires keeps the enemy's head down and is only effective for as long as fires continue.

Note: Imagine you are in a 12-man squad. Suppose your squad incurs a casualty. What needs to happen first? At a minimum one Soldier needs to provide security, one Soldier needs to provide buddy aid, and one Soldier needs to transmit a 9-Line. The squad at this point is neutralized; the squad leader must stop and decide how to treat or evacuate the casualty before carrying on with the mission. If 3 or 4 Soldiers in your squad become casualties (30%), your unit is now entirely consumed with dealing with the casualties. Your unit is effectively destroyed.

(4) Cannon, Rocket and Missile Fires. The course will focus on cannon fires as those skills are transferable to the other systems.

(5) Integrate all FS Assets into Combined Arms Operations. This is the mission of the FS block of instruction. Artillery officers must be able to work with all FS assets, not just artillery weapon systems.

b. **Goal of the Field Artillery.** *The Goal of the Field Artillery is to achieve accurate first round Fire for Effect (FFE). The goal must be achieved IOT accomplish the mission. There are several non-preferred options if the goal cannot be achieved.*

(1) Degraded FFE. This is the least preferred option. Surprise is lost, enemy survivability is increased, the probability of the enemy accomplishing their mission is increased, the probability of the battery accomplishing its mission is reduced, and ammunition is wasted.

(2) Adjust Fire. Still suffers from the negatives of a degraded FFE, but saves ammunition. One gun fires until effects are on target, then the battery fires for effect.

c. **The Five Requirements for Accurate Predicted Fire (5RAPF).** Refer MCWP 3-16.4, P 1-3 through 1-4. The 5RAPF must be met IOT achieve the goal and accomplish the mission.

(1) *Accurate Target Location and Size.* Accurate target location is required because artillery is an indirect fire weapon system, the gun cannot see the target. An 8 or 10 digit grid and an associated altitude is needed. Accurate target size is broken down into type, size, and disposition. All of these affect the shell/fuze combination, number of rounds, and sheaf employed against the target. The observer is responsible for the 1RAPF. Not all observers are created equal; the FDO must understand how this will affect the first requirement.

<p>Note: Type: How many rounds will it take to destroy a tank platoon vs an infantry platoon? Size: Will it take more or less rounds to destroy a battalion or a squad? Disposition: What projectile/fuze combination would be best to neutralize a squad with overhead cover? What about in the open?</p>

(2) *Accurate Firing Unit Location.* This is also required because the gun cannot see the target, therefore must have an 8 or 10 digit grid and an associated altitude. Survey assists by providing the orienting line (OL), end of orienting line (EOL), and orienting station (OS). These will establish the howitzer location and provide directional control. Several personnel are involved in meeting this requirement: the howitzer chief, the platoon sergeant, the platoon commander, battery gunny, the XO, the FDO, and the CO. Battery leadership is responsible for the 2RAPF.

Note: The OS is a very accurate grid marked on the ground by survey. The OL and EOL are determined by survey and the EOL is marked as well. Now if you place an aiming circle (survey gear at the battery level) which has a sight and azimuth scale on the OS and orient it on the EOL, you now have directional control and help the howitzers achieve the same.

(3) *Accurate Weapons and Ammunition Information.* Meeting the third requirement is vital as these affect muzzle velocity and in turn, achieved range. The FDO is responsible for this requirement; a good FDO is an excellent manager of muzzle velocities.

i. *Accurate MVVs.* A muzzle velocity variation is a change from the expected standard muzzle velocity. Later in the course the reasons for this change will be fully explored, for now it is a positive or negative change that must be accounted for by the FDC. A positive MVV will increase MV, which increases achieved range. A negative MVV will decrease MV, which decreases achieved range.

ii. *Accurate Propellant Temperature.* An increased propellant temperature will burn faster than expected. A faster burn will yield a higher MV, which will increase the achieved range. Likewise, a decrease in propellant temperature will slow the burn rate, reducing MV and in turn reducing the achieved range.

Note: Imagine a pot of water that is about to be boiled. What boils faster, cold water or hot water? Hot water will boil faster, much like the propellant will burn faster if it is already warmed up.

iii. *Accurate Projectile Square Weight.* A square weight is a zoned weight which classifies particular projectiles. For example, 95.0lbs is considered a 4 square projectile (for the M107 projectile family), but any projectile from 94.45lbs to 95.55lbs is also considered 4 square. Heavier projectiles always reduce the MV and in general experiences a reduced achieved range. Conversely, a lighter projectiles always increases the MV an in general experiences an increased achieved range. This intuition does not hold when firing high charges at long ranges; at these conditions breaking the sound barrier introduces additional effects where a heavier projectile may travel farther and a lighter projectile may not travel as far. This only occurs at high charges and larger ranges.

Note: Imagine you are throwing baseballs from a bucket to the catcher. You reach into the bucket, grab a baseball, and throw it dozens of times with just the right amount of force to reach the catcher. But someone replaced a baseball with a shot-put instead. You don't realize it until after you've thrown it, how far will it go?

(4) *Accurate Metrological (MET) Information.* There are four factors that affect the projectile in flight; wind direction, wind speed, air density, and air temperature. The MET section is responsible for this requirement, but the FDO is responsible for validating the MET message.

i. Wind Direction and Speed. The direction of the wind imparts a force on the projectile during flight. A head wind will reduce the achieved range while a tail wind will increase the achieved range. A crosswind moves the projectile left and right of the intended target. The larger the wind speed, the greater the effect.

ii. Air Density. A larger air density means there are more particles in a smaller space, which increases friction on the projectile. The higher the air density the greater reduction in achieved range. A lower air density provides an increase in achieved range.

Note: Imagine trying to run through a crowded subway. The more crowded the subway is (density) the harder it is to run through the crowd.

iii. Air Temperature. Air temperature does affect air density, however, this effect is already captured by the density measurement and air temperature has its own, independent effect on the projectile. The greater the air temperature, the more kinetic energy there is in the atmosphere, which is imparted onto the projectile and achieves a greater range. A lower air temperature reduces the kinetic energy and reduces the achieved range. Like projectile square weight, this effect is reversed when firing high charges at long ranges due to properties of breaking the sound barrier.

Note: Try running through the subway again, but this time the number of people is constant. Would it be harder to run through if everyone was standing still or moving? If everyone is standing still, then you have to push everyone out of the way as you go, it slows you down. If everyone is moving, then you can slip and slide through the crowd easier, you move faster.

Sometimes someone bumps into you and slows you down, but other times they bump into you from behind and speed you up.

(5) *Accurate Computational Procedures*. Without the fifth requirement, meeting the first four is pointless. All procedures and computations must be performed correctly or the requirements will not be met. Errors are reduced through proper training and supervision, as well as second independent checks. Everyone is responsible for the 5RAPF.

Instructor Note: If I ask an untrained individual to solve a long division problem, what is the probability they will derive the right answer? Extremely unlikely. Now, if I train that person, what is the probability? With good training it is very likely, but they will still make a mistake every now and then. Now suppose I supervise that person while they solve the problem. I will most likely catch mistakes and the probability they get the right answer is very high. Finally, if I train and supervise a second individual and both solve a problem and achieve the same solution, what are the chances we derived the right answer? Very high. Conversely, what are the chances they both arrived at the same wrong answer? Extremely low as there are nearly an infinite set of wrong answers, but only one right answer.

Watch the following YouTube video:

<https://www.youtube.com/watch?v=avoqxyyX42w>



FA BOLC B WELCOME LETTER



Welcome to the Fires Center of Excellence/Fort Sill, OK. As you embark on your journey to become a REDLEG here at FA BOLC B, you will build lifelong friendships, experience several new challenges and encounter an array of unique leadership styles. One of your primary duties as a newly commissioned officer in the United States Army is to be in the right place, at the right time, in the correct uniform.

A few of the right places, times and uniforms to be in while snow-birding include:

0630 PT Formation on the south side of Snow Hall in APFUs with a NEON YELLOW PT belt. Be present NLT 0615.

0900 Formation in Summerall Hall Room 31 in neat ACUs/OCs.

FA BOLC 2LT In-Processing Checklist:

- ✓ Report to Bravo BTRY Training Room in BLDG 840, RM 56 (Summerall Hall)
 - Fill out an In-Processing Folder (Brown Folder).
 - Place a copy of your orders inside the folder.
 - Get a copy of your orders stamped. (TDY students only)
 - If you have a privately owned firearm or weapon, fill out a FS Form 562.
 - You will need a copy of your DA31 (Leave Form), DA71 (Oath of Office) and your orders.
 - This is also where you will be arrived/attached to the unit in approximately 72hrs.

- ✓ Report to BLDG 4700 (The Welcome Center) for:
 - Finance (Finance Briefs are scheduled every Tuesday and Thursday at 0930.)
 - Housing (Only PCS students will report to housing. TDY students may report directly to IGH Army Hotels Allin or Aultman Hall located at 5676 Fergusson Road to check in.)
 - Transportation (PCS Students ONLY)
 - CAC/DEERS/ID Card Section (If an appointment is needed, schedule it for 3 business days after your arrival. Call: 580-442-5010)
 - Student Records (You will need 2 copies of your orders and your DA71. This is also where you will





1st Battalion 30th Field Artillery Regiment

FA BOLC B

Personal Data Sheet

PLEASE PRINT LEGIBLY



Class: _____ DOD ID #: _____ Follow on Assignment: _____

Name: _____ SSN: _____ Phone (____) _____

FULL NAME (Last, First, Middle)

Rank: _____ Commissioning Source: ROTC USMA SOCS FOCS Other _____ Component: ACTIVE ARNG USAR

Military Schools: _____ NG State: _____ Branch: _____
(e.g. Airborne/Air Assault/Pathfinder)

Prior Service: Y or N Military Email: _____
OEF: _____ OIF: _____ MOS: _____ (.mil@mail.mil)

DOB: ____/____/____ Sex: _____ Religion: _____ Ethnicity: _____
(MM/DD/YYYY)

College or University: _____ Type of Degree (circle one): BA or BS
(Full School Name) Major: _____

Spouse Name: _____ Spouse Accompanied: Yes No _____ Number of Children: _____

Spouse Email: _____

Local Street Address: _____ Apartment or Hotel Rm: _____
City: _____ State: _____ Zip: _____

Next of Kin: _____ Relation: _____ Phone: _____
NOK Street Address: _____ Apartment or Hotel Rm: _____
City: _____ State: _____ Zip: _____

Privately Owned Weapon: Yes No _____ Motorcycle: Yes No _____ Copy of Orders: Yes No _____

VIP (O-6 or higher) attending graduation or in family?

VIP NAME: _____ RANK: _____ SERVICE BRANCH: _____



NO parking in front, park in the lots to the sides

Apache Gate

Sheridan Rd.

Sheridan Rd.

Key Gate

Ft. Sill Blvd.

Bentley Gate

Scott Gate

ROAD CLOSED

MAP KEY

- 1 – Summerall Hall. Designated by the star on the map, this is where B BTRY is located, and it is the first place you want to go when arriving to Fort Sill. This is also where the Gunnery and Fire Support offices are as well as “Webster Auditorium” where your first day of class will be, ‘Terms and Ammo.’ Additionally, you will be issued Text and Instruments (T & I) from here before classes start.
- 2 – IGH Army Hotels Allin or Aultman Hall. The on-post hotel also known as a Holiday Inn. This will be the residence for the majority of you, if you choose. You can stay off post at your own expense. You will not receive BAH if you are here on TDY orders. Address is 5676 Fergusson Rd, Fort Sill, OK 73503
- 3 – Acceptable parking areas for class. Any spot that is next to a building or would generally be considered convenient is not for you.
- 4 – The Pershing Complex – located here is Pershing Hall. This is where you will have the majority of your classes outside of Snow Hall.
- 5 – Bldg 757 McNair Rd, the 1-30th FA BN building. The S-1 shop is located here. This is where you will bring you DA31 (Leave Form), DA71 (Oath of Office), and orders to be arrived/attached to the unit.
- 6 – Snow Hall. The majority of classes will be in this building on the first floor. There is a shopette on the basement floor.
- 7 – Burleson Hall. This is where the majority of your automated classes will be for Gunnery. You can park in the lot immediately south of the building.
- 8 – Honeycut Fitness Center. One of several gyms on post.
- 9 – US Post Office. You may rent a mailbox here if you desire, or you may use the hotel’s address to receive mail during your time at Fort Sill.
- 10 – Commissary
- 11 – Clothing and Sales. This is where you may purchase uniform items. It is recommended to set up your decorations/awards early for your ASUs.
- 12 – PX
- 13 – The UPS Store. Most students will get a mailbox here. It is very affordable and you can double up on boxes. Also at the UPS Store, you can buy what they call the “BOLC” package, which is a set of laminated sheets and supplies needed for the course. Highly encouraged.
- 14 – Central Issue Facility. CIF. The front is for bus transportation to use, do not park there.
- 15 – Monti Hall. Many of your simulations will be in this facility.
- 16 – Bamford Dining Facility
- 17 – Reynolds Army Health Clinic
- 18 – Fort Sill Welcome Center, Bldg 4700 This is the main building for most Fort Sill related administrative needs. You will go through here for CAC issue, DEERS, Finance, and Student Records.
- 19 – Garcia Dining Facility
- 20 – Allen Dental Clinic

Tips for FA BOLC B Students

- Website for contact information: http://sill-www.army.mil/BOLC-B_1/
- Get CAC (Common Access Card, also known as military ID) prior to checking in with the Battery. It will help with in-processing and be one less thing to do afterwards. The CAC/DEERS/ID Card section is part of Bldg 4700, the Welcome Center.
- Get a CAC reader and make sure it works on your computer.
- For verification of dependents in DEERS, bring all supporting documentation, eg. birth certificate of children, marriage certificate, power of attorney if unaccompanied, etc.
- If you PCS (permanent change of station, not temporary duty or TDY) to Sill, call Corvias Housing (580) 442-5000 as far ahead of time as possible to get on the wait list for a house.
- If you are TDY, you are not authorized any family to accompany you. This is why it says unaccompanied on your orders. There is nothing we can do to change this.
- If requesting PTDY, get it approved from previous post/commander prior to coming to Fort Sill.
- It is preferred to check in during working hours (0900-1630) if arriving before BOLC start date. If you arrive on post after the duty day, report to the battery at 0900 the next duty day.
- Arrive in OCP, do all things on-post during the duty day in OCP.
- Make sure you get your vehicle weighed prior to leaving home or OCS and keep all receipts.
- Ensure that your DA71 (oath of office) is for ACTIVE DUTY.
- Bring medical and dental records to first day of in-processing.
- The UPS Store sells a "BOLC Package" for incoming students. If you do not wish to purchase this, then you should at least invest in superfine permanent map markers (non-permanent rub off too easily, and fine are still too thick for detail), acetate sheets, alcohol pens, and operational graphics stencil. Make sure to bring a calculator as well.
- Knowing operational terms and graphics ahead of time will help you out tremendously for applying what you learn in class to your fire support capstone brief, JCATS.
- Prepare physically for ruck marches, the FA HPDT (Field Artillery high physical demands test), and the Army's new APFT.
- Have a personal laptop and printer.
- The Army Hotel (Holiday Inn) has free breakfast every morning.

Annex 1

You are required to bring to FA BOLC:

5 x Copies of Orders

5 x Copies of DA Form 31

2 x 428th Field Artillery Brigade patch, OCP

2 x Red, White, and Blue American flag patch, OCP

2 x Subdued American flag patch, OCP

2 x Name Tape, OCP

2 x U.S. Army Tape, OCP

2 x Rank

1 x Service Cap, ASU (DO NOT BUY THE FIELD GRADE OFFICER CAP)

1 x Black Beret, ASU

1 x Set of Unit Awards, ASU

- Presidential Unit Citation
- Navy Presidential Unit Citation
- Valorous Unit Award w/ one bronze oak leaf
- Meritorious Unit Commendation w/ two bronze oak leaf
- Army Superior Unit Award

1 x Set of Basic Individual Awards, ASU

- National Defense Service Medal Ribbon
- Global War on Terrorism Service Medal Ribbon
- Army Service Ribbon

1 x 1-30th unit insignia, ASU

Annex 2

Additional Resources:

FA BOLC Branch Manager: (502) 613-6113

Army IHG: (580) 355-4475

Supply: (580) 442-0083

CIF: (580) 442-3377

Training Room: (580) 442-3571

Common Core: (580) 442-3950

SHARP Hotline: (580) 917-4277

Housing Service Office: 580-442-5190

EO Hotline: 580-483-6648

Religious Support Office: (580) 442-3302

- After hours: (580) 442-3240/3241

EEO: 580-442-4024 / TTY 442-8442

Gate Hours:

- Key Gate West (Leads into main post) 24/7
- Key Gate East (Leads into BCT side of post) 0500-1400
- Scott Gate 0500-2100
- Bentley Gate 24/7
- Gate 6 (52nd street gate) 0500-1400
- Apache Gate (Leads into LETRA) Mon-Fri 0500-2000/ Sat 0600-1600/ Closed Sun

Chow Hall Hours:

- Bamford Chow Hall
 - Mon-Sat: 1100-2100; Sun: 1100-2000
- Garcia Hall
 - Mon-Sat: 1100-2100; Sun: 1100-2000

Annex 3

Off Limits Areas:

Addiction Ink 1612 Pearlie Drive, Wichita Falls, TX
Apple Run/Deer Park Apartments 2301 NW Williams Avenue, Lawton, OK
Aquarius Massage and Spa 818 SE 2nd Street, Lawton, OK
BS Unlimited 420 SW 59th St., Oklahoma City, OK
Chief's Smokin' Icehouse 1315 SW Lee Blvd., Lawton, OK
Club Chameleon (Club Inferno) 2611 Plaza Parkway #304, Wichita Falls, TX
Drew's Tobacco World 1514 SE 44th Street, Oklahoma City, OK
Eastside Smoke Shop 2005 E. Gore Blvd., Lawton, OK
FatHedz 8912 S. Western, Oklahoma City, OK
Foxy Lady 411 North Scott Ave., Wichita Falls, TX
Gary's Chicaros Club 3030 N. Grand Street, Enid, OK
Get N Go 813 W. Bois D Arc Ave., Duncan, OK
Getaway Spa and Massage 1901 NW Cache Road, Lawton, OK
Half Price Novelties 2610 Pollard Road, Lawton, OK
Half Price Novelties 2610 1/2 Pollard Road, Lawton, OK
Lynn's Books, Body Jewelry, Etc. 1904 NW Ferris Ave., Lawton, OK
Massage and Spa 1910 E. Gore Blvd, Lawton, OK
Massage and Spa 3132 NW Cache Road, Lawton, OK
Mr. Coolz 7808 S Western & 3200 N. May Ave. #A, Oklahoma City, OK
Nottingham Realty 502 NW Sheridan Road #1, Lawton, OK
Outter Limits 7092 MacArthur Blvd., Oklahoma City, OK
Pipe Dreamz 107 S. Sooner Road, Oklahoma City
Puff and Stuff 4401 NW Cache Road #A, Lawton, OK
Qwik-N-Go 2213 NW Sheridan Road, Lawton, OK
Sidewinders 24201 Oklahoma 49, Medicine Park, OK
Smitty's Toot-n-Tote 1309 NW Cache Road, Lawton, OK
Smoke 4 Less 2818 NW Sheridan Road, Lawton, OK
Studio E Club (formerly Village Vanguard) 2400 Sheppard Access Road, Wichita Falls, TX
The Other Place 605 SW Lee Blvd., Lawton, OK
Tommy's House of Music 110 East Scott Ave., Wichita Falls, TX
Zagman's Interesting Gifts 2818 NW Sheridan Road, Lawton, OK
Ziggy's Smoke Shop 2228 S. Air Depot Blvd. and 924 SW 59th St. Oklahoma City, OK

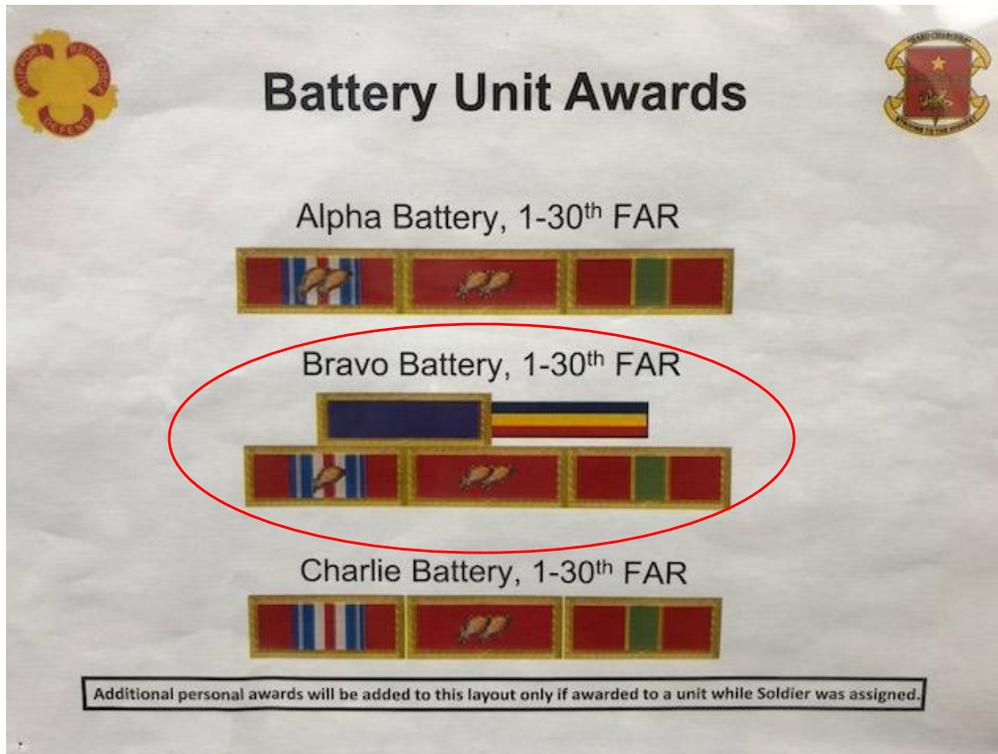
Annex 4

Unit patch



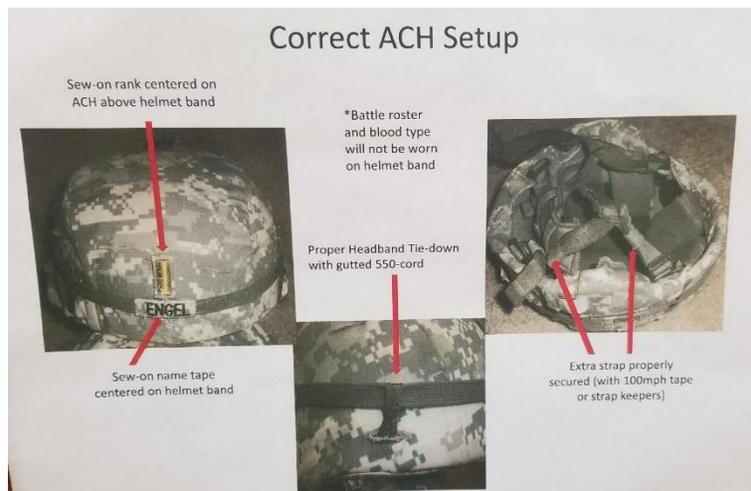
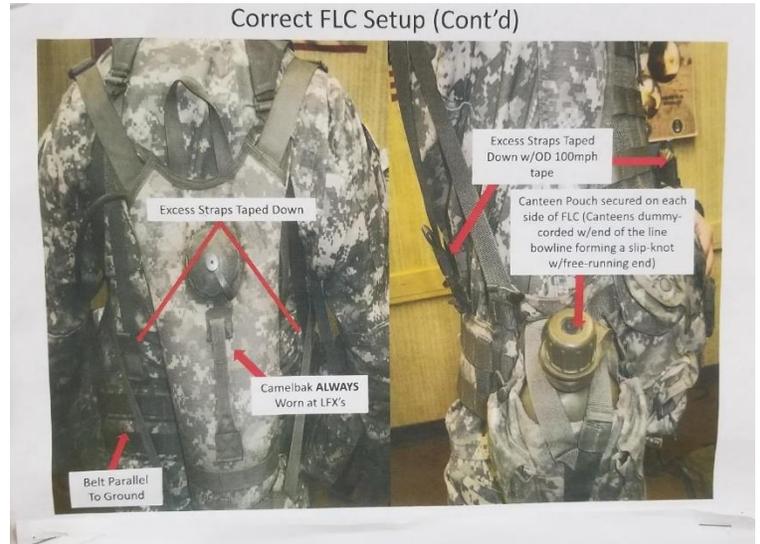
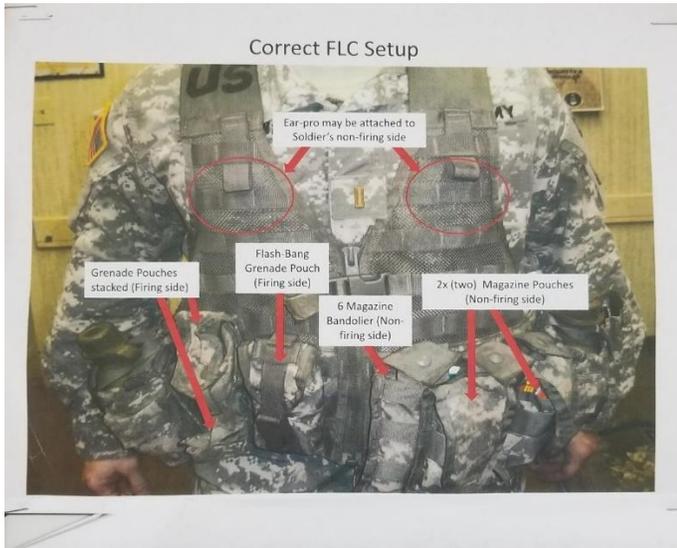
Unit citations for ASUs

It is advised to purchase these and set up your ASUs early, as clothing and sales has a limited supply.



Annex 5

FLC/ACH:



Gunnery Read Ahead

Section 1: Artillery Expression

Section 2: Introduction to Interpolation

Section 3: Weapon System and Ammunition Familiarity

Answers to Practice Problems

Section 1: Artillery Expression

You are probably familiar with the term “rounding” in mathematics. In general, the rule is quite simple; if a number must be rounded, simply take the number to the closest value and accuracy for which you wish to round it. The only special rule in rounding is that if you are exactly halfway between two values (at 0.5 for example), then you always round up.

The problem with always rounding up is that it introduces an upward bias. In professions like banking and artillery, we want to avoid this bias as it can skew results. A visual example is best to explain this principle. Imagine you are attempting to navigate to a point far away with a compass. Now suppose you run into a small building which you must go around and you choose to go around it to the right (Figure 1-1).

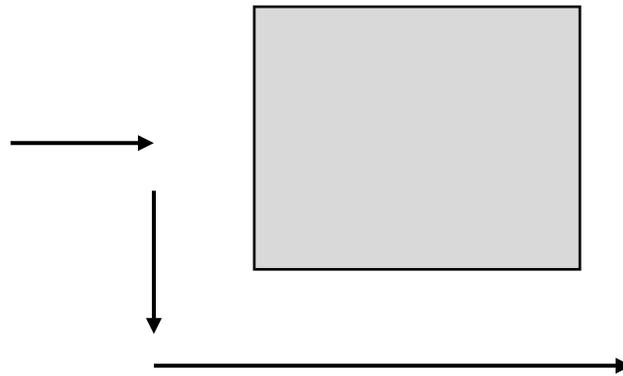
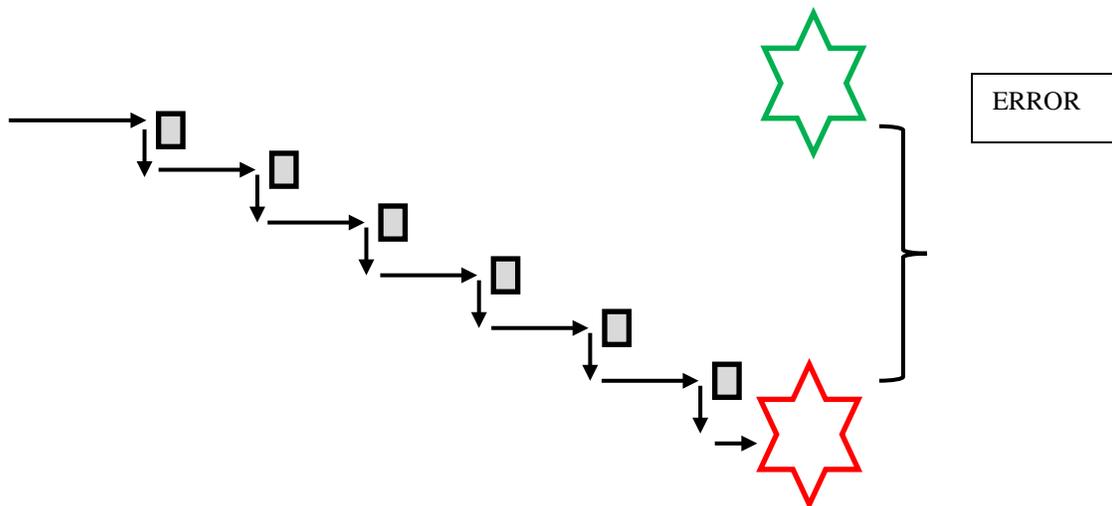


Figure 1-1

This deviation moves you slightly off course, but probably won't affect you reaching your end state. But what if you keep running into obstacles? If your rule is to always take a few steps to the right around every obstacle, in the long run you will be way off track (Figure 1-2).



Always rounding numbers at the halfway point to the higher value produces this same type of error. In order to avoid this error, artillerymen do not “round,” we “express.” The rule is no different than rounding for values that are not exactly halfway; however, if I am exactly halfway between two values, then we express to the even value, instead of always rounding higher. For example, 3.5 expresses to 4 because 4 is an even value. Rounding 3.5 would give you the same result. But consider 2.5; expressing 2.5 to the nearest whole value provides a final answer of 2, because 2 is the even value.

This expression also works for negative numbers. If I were to express -13.55 to the tenths place, my choices would be -13.5 or -13.6. Because 6 is the even value -13.6 is my expressed value. One strange case is expressing 0.5 to a whole number. Your options are 0 or 1. Zero is actually an even number, so 0.5 would express to 0. Again, this special rule only applies when numbers are exactly halfway; 1.2 still expresses to 1, 155.7 still expresses to 156 and so on. Here are a few examples for you to consider:

Example 1: Expressing to the Tens Place

How would you express 145 to the tens place? Your options are 140 and 150. You must decide which is even. At first glance they both appear to be even, but you are trying to decide the tens place value, so your choice is between 4 and 5. 4 is the even number, not 5, so 145 expresses to 140.

Example 2: Expressing to the Whole Number

How does 15.51 express to a whole number? You may be tempted to apply special expression rules about even numbers, but don't! Expressing to even values only applies when you are exactly halfway between two values. In this case we are trying to decide whether to express to 15 or 16. Because 15.51 is clearly closer to 16, it expresses to 16.

Example 3: Expressing to the Thousandths Place

The thousandths place is three numbers to the right of the decimal place: 0.00X. How would you express 5.1275 to the thousandths place? Our options for the thousandths place are 7 or 8; because 8 is the even number we would express it to -5.128.

Try the following problems:

1. Express the following values to the tens place:
 - a. 1024
 - b. 5.5
 - c. 4025
 - d. 75
 - e. -14.99
2. Express the following values to the tenths place:
 - a. -947.55
 - b. 4.7
 - c. 102.05
 - d. 1.66
 - e. 6.949
3. Express the following values to the whole number:
 - a. 0.5
 - b. -0.5
 - c. 6.500

Section 2: Introduction to Interpolation

Interpolation is a mathematical method of estimation that is often used to determine a non-listed value that is between two listed values. There are two kinds of interpolation you should be familiar with: visual interpolation and mathematical interpolation. Let's start with visual interpolation.

Visual Interpolation

Visual interpolation is nothing more than estimating, as accurately as the human eye allows, values between numbers. For example, suppose we have a specialized ruler that represents ranges in meters (Figure 2-1). Notice that our ruler is labelled every 100 meters and has graduation marks between these labels. If you count the marks you will realize that each graduation has a value of 20 meters, although they are not labelled. If this is not obvious, simply count the number of marks from the first labelled value to the second labelled value and divide the difference in value by the number of marks.

Example: $9100\text{m} - 9000\text{m} = 100\text{m}$ and $100\text{m}/5 \text{ marks} = 20\text{m}$

Figure 2-1



At first glance it appears this ruler can only measure accurately to 20m, but what if the value we want to determine is exactly between two graduation marks? In that case we might be able to guess the value between the marks fairly accurately to the nearest tens of meters. This is called visual interpolation and we can utilize this method to measure more accurately (Figure 2-2).

For example, in the figure below we can see the line we are attempting to measure falls between two graduation marks. We can read the labels (9000m and 9100m) and the graduation marks (every mark = 20m). Based on the red line's location, we can visually interpolate and determine in crosses at range 9050m.

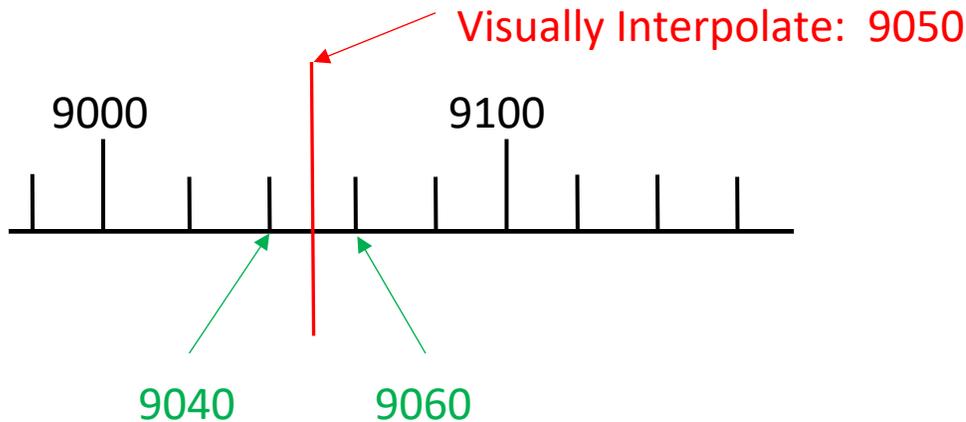
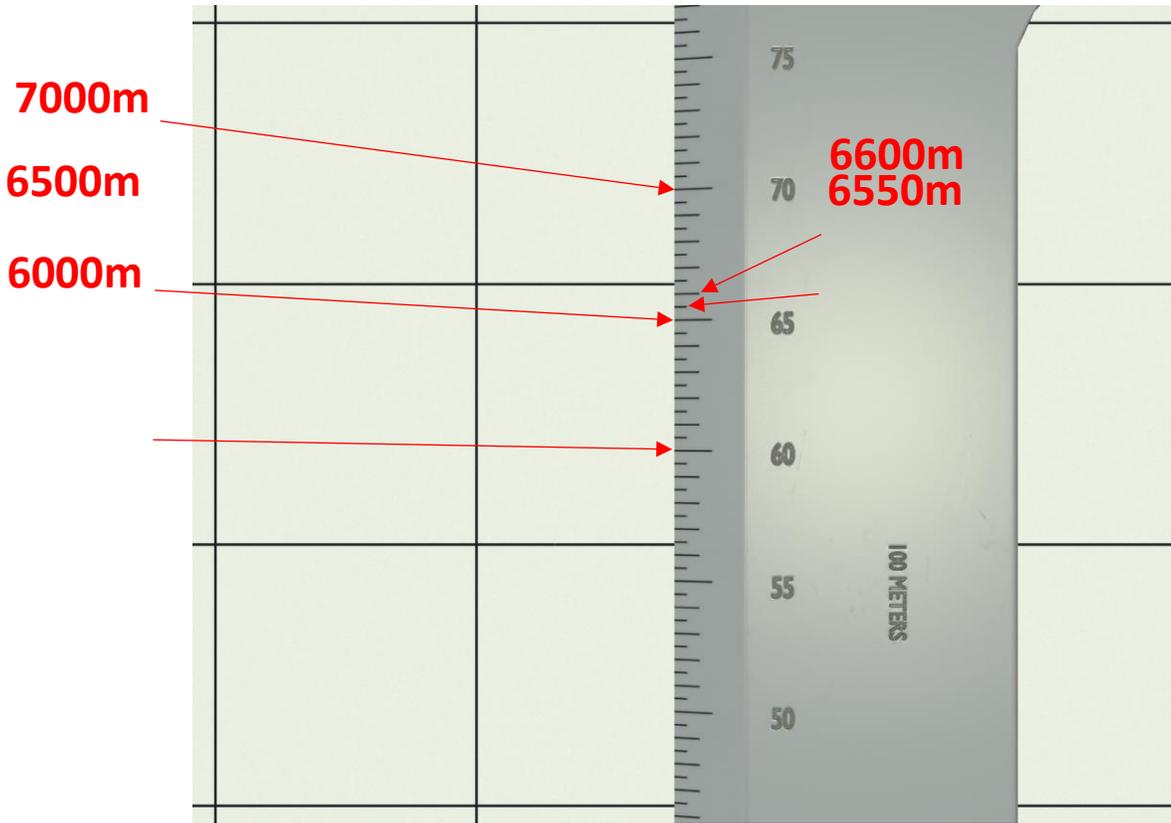


Figure 2-2

It is important to note that different rulers are designed to be visually interpolated to a certain accuracy. For example, on our ruler it is nearly impossible for us to measure to the nearest meter. Every ruler is designed with labels, graduation marks, and visual interpolation values. Let's try a few more example and problems.

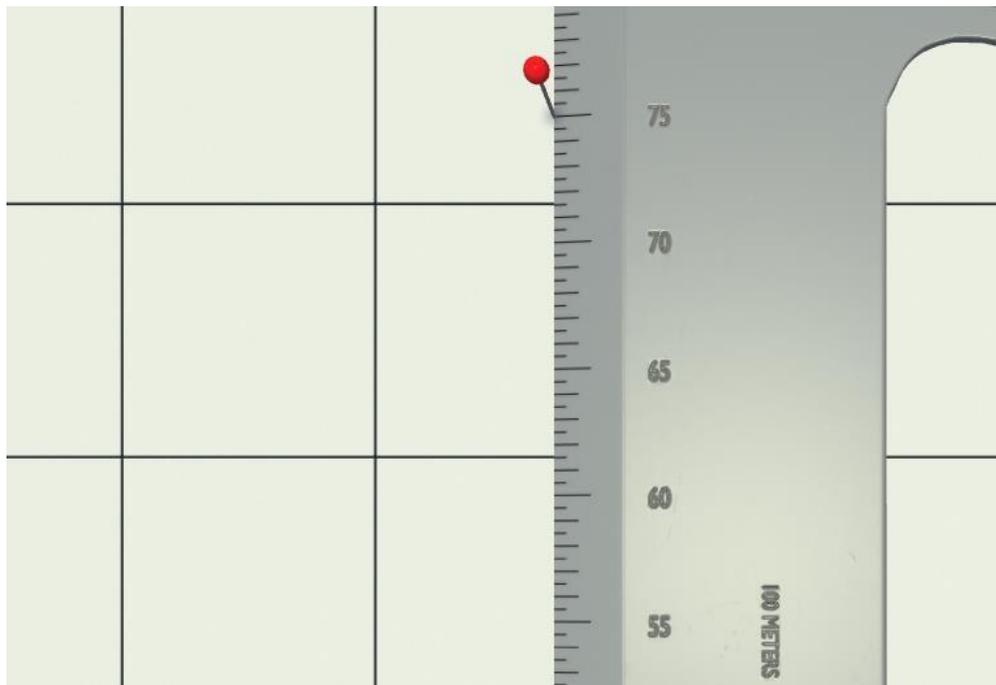
Example 1

Notice our new ruler, which measures meters, is labelled every 500m, graduated every 50m (large graduations at 100m, small graduations at 50m), and can be visually interpolated to the nearest 10m.

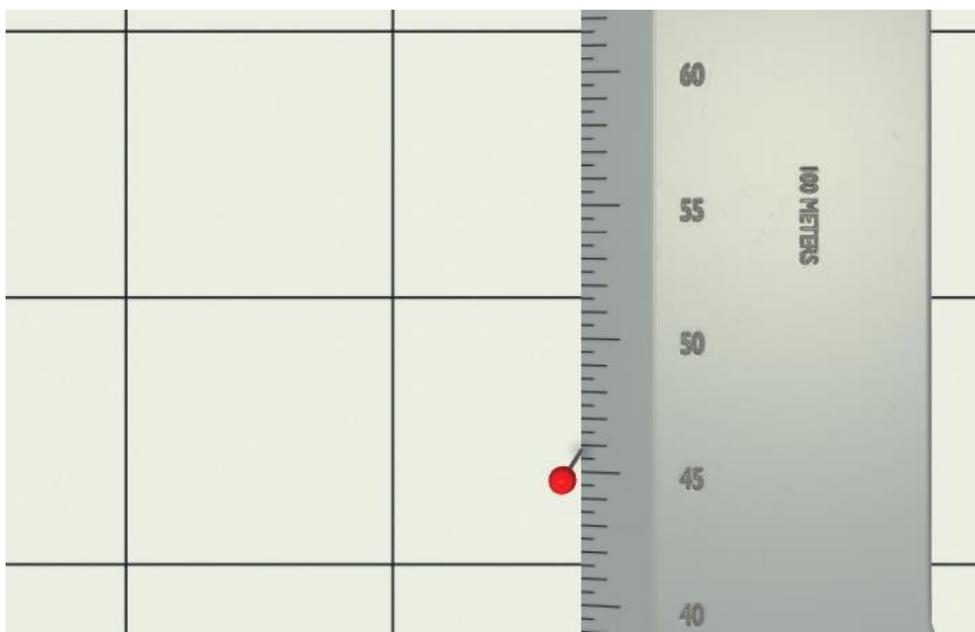


Try the following problems: SECTION 2A

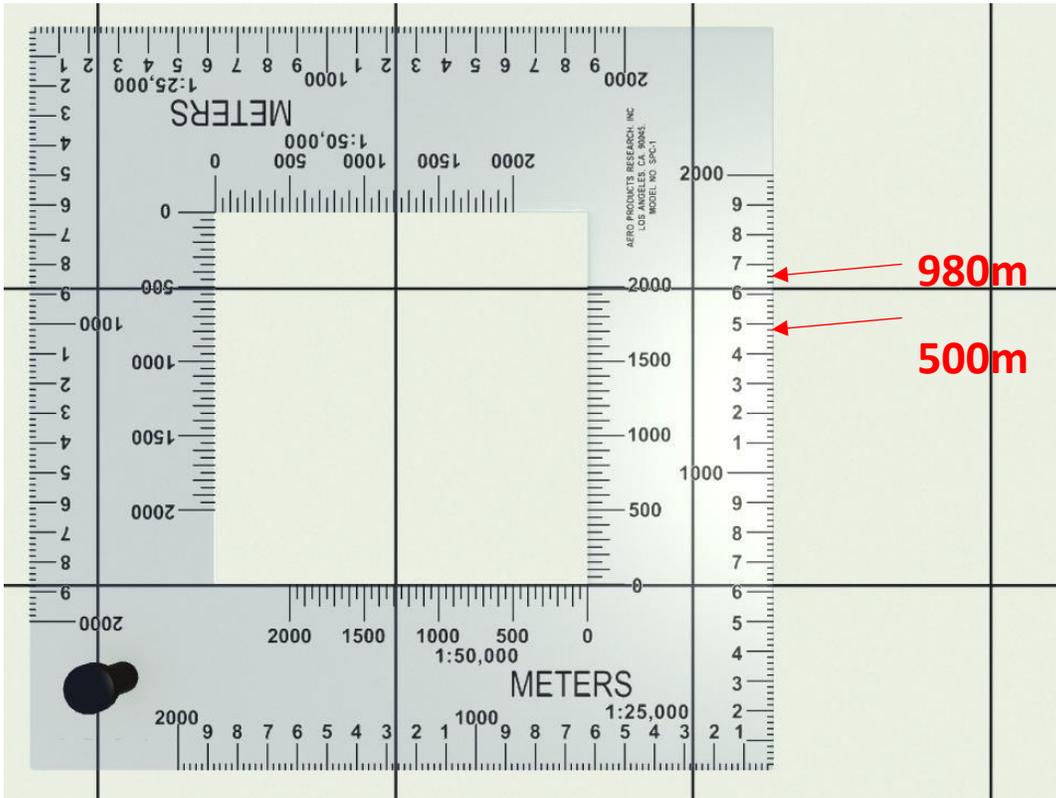
1. In the figure below there is a pin that is resting against our ruler. What is the reading along the meters scale?



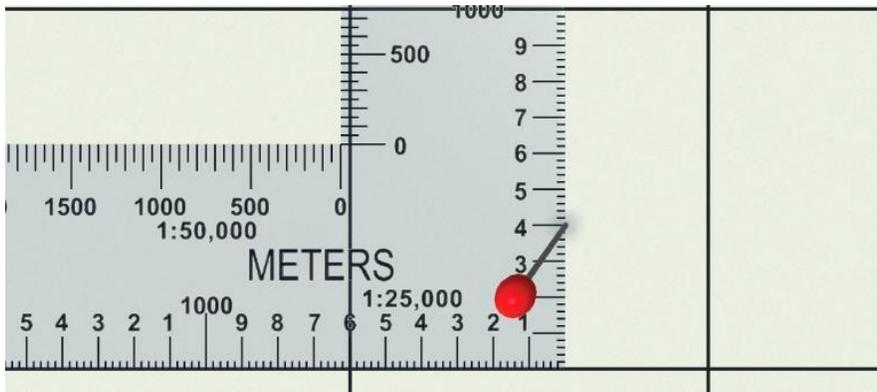
2. What is the reading for the pin along the meters scale?



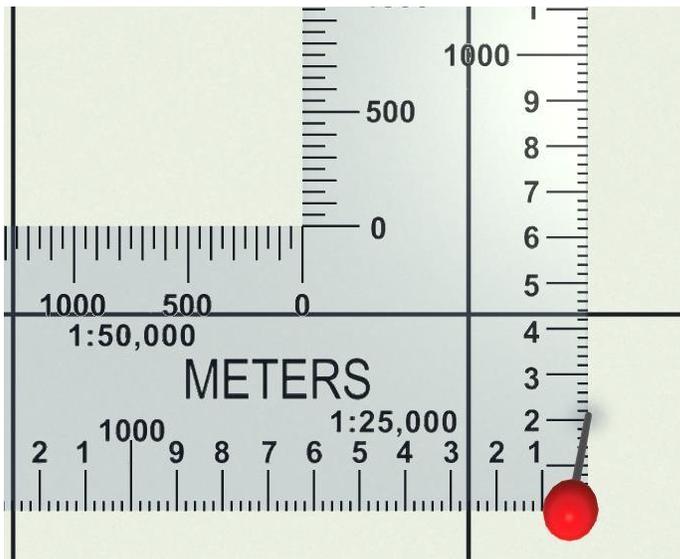
3. Notice the outer scale on the new ruler depicted below. If this ruler measures meters and is labelled every 100 meters, how often is it graduated? For the next two problems, assume that you can interpolate to the nearest 10 meters on this scale:



4. What is the reading at the pin along the meters scale?



5. What is the reading along the meters scale?



Generally speaking, visual interpolation is the easier of the two forms, but the general principle is the same for the mathematical determination. Let's use a simple example to describe the process of mathematical interpolation. Suppose you are throwing basketballs and someone is counting the shots you make and miss. The person counting your shots is rather inattentive and only records every few shots. Here is what is recorded:

# of Shots	Baskets Made
2	1
6	3
10	5

According to this chart if you shoot twice, you'll make one basket and if you shoot six, you'll make 3, and so on. The question is, if you shot four times how many baskets would you make? It's fairly obvious that the answer is two. You have just mathematically interpolated, you just didn't realize it. Most likely you realized that 4 is halfway between 2 and 6, and that 2 is exactly halfway between 1 and 3. The mathematical formulation for this is:

$$\frac{4-2}{6-2} = \frac{x}{3-1} \text{ where } x \text{ is the difference between the value we are looking for and 1.}$$

Here is a visual of how we set up our equation:



In order to solve for x, we need to set up a ratio of the differences (inside over outside). Your ratio should look like this:

$$\frac{2-x}{4-2} = \frac{1-?}{3-1}$$

Solving for x, we find that:

$$\frac{2}{4} * (2) = x, \quad \text{Therefore } x = 1$$

We don't quite yet have our final answer, however. The x is the difference between 1 and the number we are looking for, so we have to add the x to the 1 (baskets made). Since 1+1=2, the number of baskets made with 4 shots is 2.

This is generally the easiest method to mathematically interpolate. Simply follow five steps: 1) record the numbers in two columns that you are interested in, 2) determine the differences in values as depicted, 3) set the ratios equal to each other inside over outside, 4) solve for x, 5) add the value for x back to the original value on the top right side of your columns.

Note: You must artillery express (see Section 1: Artillery Expression) the value you determine for x to the appropriate accuracy of the extracted column before adding it back in. In order to understand this, let's use the basketball scenario again. This time, try to figure out how many baskets you would have made had you attempted 7 shots.

# of Shots	Baskets Made
2	1
6	3
10	5

Just by inspection we can see that the math will probably work out to a decimal answer, but it is impossible to make fractions of a shot! I either make it or I do not. The way we avoid nonsense answers like this is by expressing when I determine my value for the x. Let's see how this works:

$$4 \left\{ \begin{array}{l} 1 \\ 6 \\ 7 \\ 10 \end{array} \right. \left\{ \begin{array}{l} 3 \\ \text{????} \\ 5 \end{array} \right\} X \left. \vphantom{\begin{array}{l} 1 \\ 6 \\ 7 \\ 10 \end{array}} \right\} 2$$

So, what does our ration look like? Inside over outside:

$$\frac{1}{4} = \frac{x}{2}$$

And when we solve for x:

$$\frac{1}{4} * (2) = x, \quad \text{Therefore } x = 0.5$$

Here is where the problem lies. If I add 0.5 to 3 I will determine 3.5 shots made, but this is impossible. I am only allowed to make whole numbers of shots. Because the column on the right is accurate to the whole number, I must express my x value to a whole number before adding it back in. Another way of stating this is that I am not allowed to add a more accurate number than the table allows. In this case 0.5 expresses to 0 (exactly halfway, 0 is an even number), therefore my x=0, 3+0=3. My final answer, after interpolating, is I will have made 3 baskets with 7 attempted shots.

Try the following problems: SECTION 2B

1. If you attempt 9 baskets, how many will you make?
2. If you attempt 3 baskets, how many will you make?

# of Shots	Baskets Made
2	1
6	3
10	5

3. A golfer has only practiced his even numbered irons while on the range. Provided below is the club he hits and the range he can achieve with that club. How far can he hit his 5 iron?
4. How far can he hit his 3 iron?

Club	Distance
4 Iron	217 Yards
6 Iron	194 Yards
8 Iron	170 Yards

5. A cannon is engaging targets at various ranges in meters. The first column lists these ranges, the second column lists the Times of Flight associated with firing projectiles at that range. If you fire a projectile at 1650m, what will the time of flight be?

Range	Time of Flight
1600m	5.3
1700m	5.6
1800m	6.0

6. What is the Time of Flight from question 5 expressed to the whole second?

Section 3: Weapon System and Ammunition Familiarity

During your period of instruction (POI) you will be introduced to many different kinds of weapon systems and ammunition. It is highly recommended that you memorize as many nomenclatures and facts about each howitzer, propellant, projectile, and fuze as possible; you will be introduced to many more later on, so familiarity with the various nomenclatures will significantly improve your experience during the first few weeks of class. You are going to be flooded with information and the better prepared you are now, the easier it will be.

- I. Howitzers
 - a. 105mm Howitzers

M119A3



CARRIAGE: TOWED
BORE: 105MM
MAX RANGE: 19.5 KM
CREW: 7

- b. 155mm Howitzers

M109A6 PALADIN



CARRIAGE: SELF
PROPELLED
BORE: 155MM
MAX RANGE: 30KM
CREW: 4

M777A2



CARRIAGE: TOWED
BORE: 155MM
MAX RANGE: 30KM
CREW: 10

II. Ammunition

a. Propellants

i. MACS Charges

M231 PROPELLANT



GENERAL DATA

SYSTEMS: 155mm HOWITZERS
NOMEN: M231
COMMON NAME: LIMA CHARGE
GRAIN: MULTI PERFORATED
ZONES: 2 (CHG 1-2)
RANGE: 3-11 KM



ZONES: 3 (CHG 3-5)
RANGE: 7-22 KM
M232 IS A BI-DIRECTIONAL LOADED CHARGE.
M232 REDUCES LOGISTICAL FOOTPRINT AND
THERE ARE NO INCREMENTS TO BURN AFTER
FIRING.

RESTRICTIONS

ZONE 5 (5H) M232A1 IS RESTRICTED FROM
FIRING IN THE M777A2. BASE MODEL M232 IS
NOT.

b. Projectiles

ii. M107 High Explosive (HE)

M107 HE PROJECTILE



GENERAL DATA

SYSTEM: 155mm HOWITZERS
NOMEN: M107
COMMON NAME: HE
PROJECTILE FAMILY: M107

iii. M110 White Phosphorous (WP)

M110A1/A2 WP PROJECTILE



GENERAL DATA

SYSTEM: 155mm HOWITZERS
NOMEN: M110A1/A2
COMMON NAME: WP
PROJ FAM: M107

- b. Fuzes
 - iv. Point Detonating (PD)

POINT DETONATING (Q, PD)



NOMEN: M557
 FUZE SETTER: M18
 TIME: DELAY 0.05 SECONDS
 BURSTING CHARGE/TUBE PROJ ONLY.



NOMEN: M739A1
 FUZE SETTER: M18
 TIME: DELAY 0.05 SECONDS
 BURSTING CHARGE/TUBE PROJ ONLY.

- v. Mechanical Time Super Quick (MTSQ)

MECHANICAL TIME SUPER QUICK (MTSQ)



NOMEN: M577
 FUZE SETTER: M35 OR FLAT
 SCREWDRIVER
 TIME: 2 TO 200 SEC
 RESTRICTIONS: BASE EJECTING
 PROJECTILES ONLY.



NOMEN: M582
 FUZE SETTER: M35 OR FLAT
 SCREWDRIVER
 TIME: 2 TO 200 SEC
 BURSTING CHARGE/TUBE
 PROJECTILES ONLY.

vi. Electronic Time (ET)

ELECTRONIC TIME FUZES (ET)



NOMEN: M767
FUZE SETTER: EPIAFS OR BY HAND
TIME: 0.5 TO 199.9 SEC
RESTRICTIONS: BURSTING CHARGE
PROJECTILES ONLY.



NOMEN: M762A1
FUZE SETTER: EPIAFS OR BY HAND
TIME: 0.5 TO 199.9 SEC
RESTRICTIONS: BASE EJECTING
PROJECTILES ONLY.

vii. Variable Time (VT)

PROXIMITY FUZES (VT)



NOMEN: M728
FUZE SETTER: M27 OR BY HAND
TIME: 5 TO 100 SEC
RESTRICTIONS: BURSTING CHARGE
PROJECTILES



NOMEN: M732A2
FUZE SETTER: M27 OR BY HAND
TIME: 4 TO 156 SEC
5 TO 150 SEC (M732)
RESTRICTIONS: BURSTING CHARGE
PROJECTILES

Answers to Practice Problems

Section 1: Artillery Expression

1. Expressing to the tens place
 - a. 1020
 - b. 10
 - c. 4020
 - d. 80
 - e. -10
2. Expressing to the tenths place
 - a. -947.6
 - b. 4.7
 - c. 102.0
 - d. 1.7
 - e. 6.9
3. Expressing to the whole number
 - a. 0
 - b. 0
 - c. 6

Section 2a: Visual Interpolation

1. 7500 Meters
2. 4580 Meters (+/-10 Meters)
3. 20 Meters
4. 400 Meters
5. 201 Meters

Section 2b: Mathematical Interpolation

1. 5
2. 1
3. 205 Yards
4. Not Enough Information
5. 5.5 Seconds
6. 6 Seconds