Namvets.com suggests, Mount POW/MIA is a mountain in the state of Alaska that has been dedicated to all the soldiers that are or have been given the status of Prisoner of War or Missing in Action. The mountain is just north of Eklutna Lake and is west of Twin peaks and Bull Peak, six miles southeast of Wasilla in Chugach State Park. There is a POW/MIA flag placed atop of Mount POW/MIA and replaced annually by the Local Colony Army JROTC program during Memorial Day weekend in May. The mountain stands approximately 4280 feet tall or 1000 feet fewer than a mile. Mount POW/MIA casts a massive shadow of approximately 1427 ft as noted by the limited growth of vegetation within that obstructed region. Overwhelmingly frustrated with elected officials' blatant inability to work collaboratively in an effort to recover his missing brothers-in-arms, a 72- year-old, 225 pound, 78-inch tall Vietnam Veteran proudly renders a salute to honor the memory of these unaccounted for heroes. Illustrate the complete diagram and use proportions to determine the dimensions of Veteran's shadow. **(MA.912.A.10.1; MA.912.A.5.4; MA.912.A.2.13; MA.912.A.5.1)**

Identify the theoretical probability in randomly selecting the following letters from "Prisoner of War-Missing in Action" with and without replacement: a. P (vowel then vowel), b. P (consonant then consonant), c. P (E then E), d. P (consonant then vowel), e. P (Q then Q), and f. P (letter then letter). What is meant by the complement of an event? Identify how these results may differ in the event experimental probability was employed as opposed to theoretical. When are these events dependent as opposed to independent? **(MA.912.A.1.4; MA.912.A.2.13; MA.912.A.10.1; MA.912.A.1.1)**

According to the official report, on the afternoon of Dec. 4, 2006, McGinnis' platoon was on mounted patrol in Adhamiyah, Iraq to restrict enemy movement and quell sectarian violence. During the course of the patrol, an unidentified insurgent positioned on a rooftop nearby threw a fragmentation grenade into the Humvee. Without hesitation or regard for his own life, 19-year-old McGinnis threw his back over the grenade, pinning it between his body and the Humvee's radio mount. McGinnis absorbed all lethal fragments and the concussive effects of the grenade with his own body. Assume for a moment that the grenade infiltrated the vehicle rendered the following results: (-3, 3), (-1, 0), and (1, -3). Write a function rule to describe this relationship and create a table of values. Is the equation a direct variation? Find the constant of the variation. Identify the domain and range of each relation. Identify the dependent and independent variables. Create a table, graph the data and label each section, create a mapping diagram, and determine whether a function exists via the Vertical-Line Test. **(MA.912.A.1.4; MA.912.A.2.13; MA.912.A.10.1; MA.912.A.2.2; MA.912.A.2.3; MA.912.A.2.4)**

On April 4, 2003, the 1st Brigade Combat Team, 3rd Infantry Division, attacked to seize Objective Lions, the Baghdad International Airport. Sergeant First Class Paul R. Smith fired on the advancing enemy from the unprotected position atop the APC and expended at least three boxes of ammunition before being mortally wounded by enemy fire. The enemy attack was defeated. Sgt. 1st Class Smith's actions saved the lives of at least 100 Soldiers, caused the failure of a deliberate enemy attack hours after 1st Brigade seized the Baghdad Airport, and resulted in an estimated 50 enemy soldiers killed. The amount of ammunition dispensed from a weapon varies directly with the number of rounds passing through the chamber. The M2 .50 caliber machine gun discharges up to 550 rounds per minute. Suppose the weapon was fired a maximum capacity for 6 minutes. Write a function relating the rounds fired r to the amount f time t. Is this a direct variation? **(MA.912.A.1.4; MA.912.A.2.13; MA.912.A.10.1; MA.912.A.2.2; MA.912.A.2.3; MA.912.A.2.4)**

According to National Public Radio (NPR), all the tanks, planes and ships of the U.S. military burn about 340,000 barrels of oil per day, making it the "single-largest purchaser and consumer of oil in the world." The High Mobility Multipurpose Wheeled Vehicle (HMMWV) consumption of diesel fuel varies, but generally less than 12 miles per gallon. On average eight on the highway and four in the city. The number of gallons g of gas used varies directly with the number of m miles traveled. According to Independent Statistics and Analysis United States Energy Information Administration, the average cost for a gallon of diesel nationwide is $4.017. Write a function rule relating the cost c for g gallons of gas. Is this a direct variation? Write and solve a direct variation relating the cost of gas to the miles traveled. Employ the same inquiries upon the Buffalo Mine Protected Vehicle, which generally acquires 3.5 miles per gallon and maintains an 85-gallon tank. **(MA.912.A.1.4; MA.912.A.2.13; MA.912.A.10.1; MA.912.A.2.2; MA.912.A.2.3; MA.912.A.2.4)**

An elite squad of United States Green Berets is strategically maneuvering through inclement weather deep behind enemy lines in Kabul, the capital and the largest city in Afghanistan. Their primary objective is to secure the capital city, extract and detain enemy forces, and ultimately reunite at a predetermined rally point. Naturally, their rate of speed is subject to a number of variables not limited to but to include potential casualties sustained as well as insurmountable hazards encountered. If opposition forces are minimal, they will travel at an average speed of five miles per hour and therefore, arrive approximately six minutes prematurely. If resistance is profound, they will instead travel at an average speed of three miles per hour and arrive within a timely manner. The following equation can be used to model the situation, where t represents their commute time in hours $5(t - .10) = 3t$. Identify the overall distance between their initial location and the rally point. Use the $d=rt$ formula and substitute 3 *mph* for r and .25 for t. Explain why proactively deriving this information in advance is critical to mission success.
(MA.912.A.3.1; MA.912.A.10.1; MA.912.A.2.13; MA.912.A.3.5)

In light of a recent series of tragic unforeseeable events not limited to but to included the exceedingly high probability of losing his beloved spouse coupled with his unborn child, Erick Munoz has desperately resorted to an infamous payday loan in the principal amount of $350 simply to retain water and power services in his domain. Provided the sluggish economy, multiple agencies are readily available; however, two semi-reputable financial organizations have presented somewhat appealing offers. Guido Financial Services charges fees equivalent to 515% whereas their major competitor, Tony Soprano & Associates charges $475% coupled with $50 in processing fees. Define a variable. Write and solve an equation for each situation. Create a table and determine from which organization would you recommend contracting financial security services? Graph the results. Explain your reasoning coupled with the reasonableness of each respective offer.
(MA.912.A.10.1; MA.912.A.5.4; MA.912.A.2.13; MA.912.A.5.1)

Deductive reasoning is the process of reasoning logically from given facts to a conclusion whereas with inductive reasoning we simply utilize patterns to make predictions. Design an algebraic *equation* that effectively models a situation of your choosing. Using deductive reasoning, meticulously justify each step with specific reasons such as properties, definitions, and rules not limited to but to include the distributive, associative, and communicative properties of real numbers. Construct a modified two-column proof to differentiate between the mathematics and properties applied in determining the solution. **(MA.912.A.10.1; MA.912.A.2.13; MA.912.A.3.5; MA.912.A.3.2)**

SAME-DIRECTION TRAVEL: An industrial strength High Mobility Multipurpose Wheeled Vehicle (HMMWV) departs a forward operating base (FOB) at 1300 at an average rate of 35 miles per hour. Once it became evident that they neglected inadvertently to secure their essential Night Vision Goggles, a secondary vehicle was dispatched to provide support. An hour later an IAV Stryker departs base at 50 miles per hour along the same route on a path parallel to the first. How long before the Stryker catches the HMMWV? **(MA.912.A.10.1;MA.912.A.2.13;MA.912.A.3.5)**

ROUND-TRIP TRAVEL: Private Backwash painstakingly navigates through an Iraqi desert. Because of an insurmountable unforeseeable sandstorm, she averages 2 miles per hour. On her commute back to post, she averages approximately 4 miles per hour. If the total travel time is 2 hours, how long did it take her to initially navigate through the desert? Design a table and explain your reasoning.
(MA.912.A.10.1; MA.912.A.2.13; MA.912.A.3.5; MA.912.A.1.4; MA.912.A.3.2)

OPPOSITE-DIRECTION TRAVEL: While participating in a joint operations force, an Army Sergeant coupled with a Marine Corporal are patrolling in opposite directions on a straight path. The corporal is travelling 2 miles per hour faster than his colleague and after 2 hours they are 8 miles apart. Write and solve an equation to determine the rate of the Sergeant and Corporal. Design a table and explain your reasoning.**(MA.912.A.10.1; MA.912.A.2.13; MA.912.A.3.5; MA.912.A.1.4; MA.912.A.3.2)**

Patrick Wintour as his associates in Afghanistan previously noted U.S. President George W. Bush demanded that the Taliban hand over Osama bin Laden and expel al-Qaeda. The Taliban requested that bin Laden leave the country, but declined to extradite him without evidence of his involvement in the 9/11 attacks. The United States refused to negotiate and launched Operation Enduring Freedom on 7 October 2001 with the United Kingdom. Effectively employ the process referred to as unit or dimensional analysis and write out the appropriate conversion factors necessary to determine the

number of seconds troops have engaged in war with Afghanistan upon receipt of this document - 4509 days later. **(MA.912.A.10.1; MA.912.A.1.4/5; MA.912.A.2.13)**

In accordance with the applicable 2010 Military Pay Scale Chart, at the time of his premature demise, United States Army Specialist Shannon "Doc" Chihuahua, was earning $1986.30 per month. In a feeble attempt at keeping up with inflation, since 1 January 2014 one serving in a similar capacity is presently earning $2101.80. Identify the percent of change and describe as an increase or decrease. **(MA.912.A.1.4; MA.912.A.2.13; MA.912.A.10.1; MA.912.A.1.1)**

The scale of a map in Watapur Valley in Afghanistan's Kunar province equates to 1 inch: 17.5 miles. Find the actual distance corresponding to a map distance equivalent to 12.75 inches. **(MA.912.A.10.1; MA.912.A.1.4; MA.912.A.2.13; MA.912.A.1.5)**

Define a variable; write an algebraic expression, and accurately modeling three unique phrases into an input-output table. Compare and contrast the differences and similarities as they pertain to algebraic expressions and equations. (**MA.912.A.10.1; MA.912.A.2.13; MA.912.A.3.5)**

Identify, apply, and model the distributive, associative, and communicative properties of real numbers. **(MA.912.A.2.13; MA.912.A.3.2; MA.912.A.10.1)**