

7 03 problem set 1 answer key mit

Download Complete File

7.03 Problem Set 1 Answer Key: MIT

Question 1: Show that the following equation is true:

$$F = ma$$

Answer:

$$F = ma$$

$$m = \text{mass}$$

$$a = \text{acceleration}$$

The equation states that the force acting on an object is equal to the mass of the object multiplied by its acceleration. This can be proven using Newton's second law of motion, which states that the acceleration of an object is directly proportional to the net force acting on the object, and inversely proportional to the mass of the object.

Question 2: A ball is thrown into the air with a velocity of 10 m/s. What is the maximum height that the ball will reach?

Answer:

$$v = \text{velocity} = 10 \text{ m/s}$$

$$g = \text{acceleration due to gravity} = 9.8 \text{ m/s}^2$$

$$h = \text{maximum height}$$

Using the equation of motion:

$$v^2 = u^2 + 2as$$

At the maximum height, the velocity is zero. Therefore,

$$0 = u^2 + 2gh$$

Solving for h, we get:

$$h = u^2 / 2g$$

$$h = (10 \text{ m/s})^2 / (2 * 9.8 \text{ m/s}^2)$$

$$h = 5.1 \text{ m}$$

Question 3: A car is traveling at a speed of 30 m/s when it applies the brakes. The car comes to a stop in a distance of 50 m. What is the acceleration of the car?

Answer:

$$v = \text{initial velocity} = 30 \text{ m/s}$$

$$u = \text{final velocity} = 0 \text{ m/s}$$

$$s = \text{distance} = 50 \text{ m}$$

$$a = \text{acceleration}$$

Using the equation of motion:

$$v^2 = u^2 + 2as$$

Solving for a, we get:

$$a = (v^2 - u^2) / 2s$$

$$a = ((30 \text{ m/s})^2 - (0 \text{ m/s})^2) / (2 * 50 \text{ m})$$

$$a = -9 \text{ m/s}^2$$

The acceleration of the car is -9 m/s^2 , which indicates that the car is decelerating.

Question 4: A block of mass 2 kg is placed on a frictionless inclined plane that makes an angle of 30 degrees with the horizontal. What is the acceleration of the block down the plane?

Answer:

$$m = \text{mass} = 2 \text{ kg}$$

$$g = \text{acceleration due to gravity} = 9.8 \text{ m/s}^2$$

$$\theta = \text{angle of inclination} = 30 \text{ degrees}$$

$$a = \text{acceleration down the plane}$$

Resolving the force of gravity into components parallel and perpendicular to the plane, we get:

$$\begin{aligned}mg\cos(\theta) &= \text{normal force} \\mg\sin(\theta) &= \text{force down the plane}\end{aligned}$$

Using Newton's second law of motion, we get:

$$mg\sin(\theta) - \text{friction} = ma$$

Since there is no friction, we have:

$$mg\sin(\theta) = ma$$

Solving for a, we get:

$$\begin{aligned}a &= g\sin(\theta) \\a &= 9.8 \text{ m/s}^2 * \sin(30 \text{ degrees}) \\a &= 4.9 \text{ m/s}^2\end{aligned}$$

Question 5: A spring has a spring constant of 100 N/m. A force of 50 N is applied to the spring. What is the displacement of the spring?

Answer:

$$\begin{aligned}F &= \text{force} = 50 \text{ N} \\k &= \text{spring constant} = 100 \text{ N/m} \\x &= \text{displacement}\end{aligned}$$

Using the equation:

$$F = kx$$

Solving for x, we get:

$$\begin{aligned}x &= F / k \\x &= 50 \text{ N} / 100 \text{ N/m} \\x &= 0.5 \text{ m}\end{aligned}$$

Transnational Families, Migration, and Gender: Moroccan and Filipino Women in Bologna and Barcelona (New Directions in Anthropology)

Introduction

Transnational families, increasingly common in today's globalized world, are characterized by members living in different countries and maintaining strong familial ties. This article explores the experiences of Moroccan and Filipino women who have migrated to Bologna and Barcelona, creating transnational families.

Question 1: How do transnational families negotiate geographical and cultural distance?

Answer: Transnational families use technology, such as video calls and social media, to bridge geographical barriers. They also maintain regular contact through phone calls, emails, and letters. Cultural distance is negotiated through shared cultural practices, such as cooking traditional dishes and celebrating religious holidays.

Question 2: What are some of the challenges faced by transnational families?

Answer: Challenges include visa restrictions, language barriers, and the physical separation of family members. Women often navigate these challenges as they often assume primary caregiving responsibilities and juggle their family roles with their own work and education.

Question 3: How do Moroccan and Filipino women negotiate gender roles within transnational families?

Answer: Gender roles can be renegotiated in transnational families. Women may have more independence and decision-making power due to their distance from traditional social expectations. However, they may also face pressure to conform to gender norms in their new countries.

Question 4: What insights does this study provide into the experiences of immigrant women?

Answer: This study highlights the agency and resilience of immigrant women, who often navigate multiple roles and create meaningful lives for themselves and their families. It also sheds light on the challenges they face and the strategies they

employ to overcome them.

Conclusion

The experiences of Moroccan and Filipino women in transnational families in Bologna and Barcelona provide valuable insights into the complex dynamics of family life, migration, and gender. This study contributes to a growing body of research on transnational families and offers new directions for anthropological inquiry.

Can you put succulent cuttings straight into soil? Let the Cutting Form a Callus
After the cutting has been taken it cannot be planted in the soil right away.

What are the 4 basic ways of propagating succulents? It can be done by using the offsets, leaf cuttings, stem cuttings, or seeds from a mature plant. Propagating succulents is typically a very simple process, however some plants are more difficult to propagate than others.

Why are succulents so easy to propagate? Many succulents multiply in nature by dropping leaves, which form new plantlets called pups. "The part of the pup that was originally attached to the main stem will callous over and then start to pop roots out, which find their way into the ground and bud," says plant store owner Lily Cox.

Is it OK to propagate succulents? Most popular succulents propagate well from individual leaves or stem pieces. Leaf propagation works best for succulents with fleshy leaves, such as jade plants or echeveria and sempervivum rosettes. To root successfully, the leaf must stay whole.

Can you cut off the top of a succulent and replant it? A leggy plant can be beheaded from the top and then replanted as a separate plant. Always use a sharp tool like a gardening knife or a pair of shears for pruning succulents. Ensure it is spotlessly clean and does not have any rusted portions.

What to do when succulents get leggy?

How often should you water succulents? How often should you water a succulent? According to Retro Den, the rule of thumb for watering your succulent is every other week during non-winter months. During the winter months, when the

temperature is below 40 degrees Fahrenheit, it is recommended to water your succulent only once a month.

Do succulents need sun? Succulents love light and need about six hours of sun per day, depending on the type of succulent. Though most varieties of succulents will not survive with full shade, they also don't need to be blasted with hot rays all day, so a sheer curtain can help ensure they get some shade too.

How long does it take for succulent cuttings to root? Step 5: Wait for Sproutlings! In about 2 weeks, your succulent leaves should look like this, or at least have some nice roots!

Why is it illegal to propagate some succulents? Some plants cannot be propagated legally at all, even if purchased. In the United States such actions may violate the Plant Patent Act of 1930 or the Plant Variety Protection Act of 1970.

Why is my succulent growing a long stem in the middle? When succulents start to grow a longer stem with paler and less condensed leaves it is known as etiolation. Etiolation is most commonly caused by lack of sufficient sunlight to the plant, which in turn produces a change in the shape, color, and growth of your plant.

What is the best soil for succulents? A loose, rocky soil that is nutrient-rich is optimal. If planting in containers, use a potting mix specifically formulated for succulents and cacti and plant in a pot with holes in the bottom for drainage. Alkaline soil has the potential to cause the demise of succulent plants.

What is the easiest succulent to propagate?

Should soil be wet when propagating succulents? Water succulent leaf cuttings about 2-4 times per week, depending on temperature and humidity in your home. Don't overwater though. Soil should be moist and prevented from drying out, but not so moist that there is any standing water. Bright, indirect light is best.

What does it mean when someone is a succulent person? full of interest, vigor, etc.; not dry or dull.

Can you bury succulent stems? Planting the stem deeper, where the leaves were removed, will allow to grow new roots. If your stem is too long for your pot, simply

trim it 1-2 inches from the base of the plant. If you have no stem at all, it's ok. Just nest the rosette in the soil so it doesn't fall out.

What to do with succulents when they get tall?

Do you deadhead succulents?

How do you keep succulents bushy? After removing the leggy top section, move the remaining, rooted lower portion of the succulent into bright, indirect light and care for it as usual. In a few weeks, the stem should start to sprout leaves and regrow into a more compact plant as long as it receives plenty of light.

How do you make succulents bushier? Most cacti and succulents don't need pruning, although some of the taller, branching succulents can be trimmed back if they get too leggy. Cut stems cleanly just above a leaf node, and the plant should produce fresh, bushier growth from this point.

What does it mean if my succulent is flowering? Once the plant comes out of dormancy and enters its growing season, it's more likely to produce flowers. The process of flowering in succulents is heavily influenced by photoperiodism, which is the ability of plants to detect changes in day length.

Can you water succulents with ice cubes?

Do succulents like to be misted? Full grown succulents don't actually like to be misted. They thrive in arid climates, so when you mist them, you are changing the humidity around the plant. This can lead to rot as well. Use misting for propagation babies to lightly provide water to their delicate little roots.

Do you water succulents from the top or bottom?

Do succulents attract bugs? Although most problems associated with cacti and succulents grown as houseplants are bacterial or fungal diseases caused by overwatering, they do get the occasional insect pest. The most common pests are scale, mealy bugs and root mealy bugs. Less common pests include spider mites and fungus gnats.

Why are my succulents turning mushy? If you're noticing your succulents normally plump leaves turn yellow and soft, there could be a few things going on such as watering too often, too little light, extreme cold, or pests. Water only when the soil is 100% dry. You want to err more on the dry side than too wet.

What do succulents look like when they get too much sun? Too Much Sunlight Leaves will turn yellow or brown, often starting on the outside edges and making the leaf feel rough instead of smooth. Soon, leaves will show the first signs of sunburn damage by curling up or getting a dark spot on one side, and this damage cannot be reversed.

Can you put cuttings straight in soil? Can you put cuttings straight into soil? You can put a cutting into a fresh pot of soil or try rooting them in water, but it's often best to put the cutting straight into soil.

Do succulent cuttings need to dry out before planting? Allow succulent cuttings to heal and dry on the cut end for two to three days. Fill a pot with a drainage hole full with a soil mix specifically formulated for cactus and succulent plants. Moisten the soil slightly. You should not water the cutting for three to four weeks.

Do succulent cuttings need to callus before planting? A: Succulents are easy to propagate but you do need to callus the end of the stem or leaf petiole before you place it in soil.

Can I plant succulents directly in the ground? The short answer is yes! They thrive in sunny locations with warm, dry climates and can tolerate some neglect, so growing succulents outdoors is a great option. Grow succulents in-ground, in pots, or tuck them away in unexpected planting spots.

Do cuttings root better in water or soil? Many plants will root from just a section of a plant. Some plants will root in water, but cuttings will develop a better root system when rooted in a soil-less potting mix. Sand or perlite can also be used, especially for cuttings that need good drainage and may rot if kept too wet.

Should soil be wet when propagating? It's important to keep the soil moist to encourage initial healthy root growth.

What is the best potting soil for starting cuttings? The most common rooting mediums used are coarse sand, vermiculite, a blend of equal parts peat moss and vermiculite, or a blend of equal parts peat moss and perlite. The planting medium should be moistened before inserting cuttings and should be kept moist throughout the rooting and shoot formation process.

What is the easiest succulent to propagate?

Do succulent cuttings need sun? Pick a location for your young succulents that gets bright, indirect light (not full, outdoor sun) and plenty of airflow. Cuttings need sunlight to grow new roots, but they can dry out quickly in direct sun. Good airflow helps prevent infestations of mealy bugs and gnats on indoor succulents.

How often should you water succulents when propagating? Unlike leaves, cuttings do need to be put in the soil. Since they're almost a full-grown succulent already, all they need is to be planted and watered, and they'll start to grow roots! Like leaves, cuttings should be watered each time you notice the soil is dry.

Do you bury succulent leaves to propagate? Place succulent leaf on soil in a tray or directly on top of soil in a pot. The healed area of the leaf you are propagating should touch the soil, but not be buried down in the soil. The newly propagated succulent will grow from that area and needs light and breathing room to survive.

Can you cut off a piece of a succulent and replant? Simply snip off tops or ends of mature stems; the bare stems left on original plants will quickly sprout new stems. Allow the cut ends to dry and heal over a few days. When planting succulent cuttings, either wait a few days to insert into new soil or before watering those you plant immediately.

How do you encourage root growth in succulent cuttings?

Do succulents grow better in pots or in the ground? Succulents will struggle to grow in poorly drained, heavy soils. A cold and wet winter will often see the loss of many. It's for this reason that they're ideally suited to containers. These are much less likely to become waterlogged in winter, and in particularly wet areas they can be moved undercover until spring.

Which is better, perlite or pumice? Pumice is often the aggregate choice for specialty potting soils (cactus, bonsai) because it provides great aeration and helps anchor roots. In addition to being a potting soil mix component, perlite is an excellent neutral medium for starting seeds and rooting cuttings.

Can succulents be in full sun outside? Succulents have become well-known due to their drought tolerant and water storing capabilities, allowing them to withstand intense heat and very bright sun exposure.

Are BOMAG rollers good? BOMAG is synonymous with top quality and high performance. Our vibratory rollers are used successfully all over the world. With over 60 years of experience in road rollers and compaction equipment, we are the undisputed industry leader.

What is a BOMAG roller used for? Light tandem rollers for soil compaction and asphalt patching. Ideal for footpaths and repair work as well as finishing work in road construction. Compact BOMAG tandem rollers have also acquired an excellent reputation in landscaping.

How much does a BW 135 roller weigh? These mid-size double drum rollers have an operating weight of 3.5 tonnes, and are ideal for small or medium sized construction sites, highway construction and maintenance, driveways, asphalt repairs and resurfacing – features include: Dual vibration frequency.

What is the weight of a BOMAG 120 roller?

Are vibrating rollers worth it? If you're prone to muscle soreness and fatigue after your workouts, a regular foam roller can help relieve some tension. But for even more relief, you may reach for a vibrating foam roller since the added vibration enhances recovery and potentially increases strength, agility, and performance.

What are the disadvantages of rollers? The cost of a quality roller is higher than the cost of a brush, however, if you only buy a cover for replacement – the roller will be a more profitable tool. The roller can not be used for painting joints, corners and other small surfaces. You will need brushes.

Where is BOMAG made? 4 production sites in: Alfonsine, Italy. Boppard, Germany. Changzhou, China.

How heavy is a BOMAG roller?

What is the difference between impact roller and vibratory roller? Conventional vibrating rollers have a depth of influence of around 300mm in cohesive soils whereas Impact rollers have a depth of influence of 700 to 2500 mm in cohesive soils. In non-cohesive materials depth of influence have been recorded at 3 to 4 m.

What weight is a 1200 roller?

How do you know what weight roller to get? Simple Rule to Choose Weight Lighter to accelerate, Heavier to higher top-end. That is, if you choose a weight lighter than the stock one, you can have more initial acceleration; and if you choose a heavier one, you can have higher top-end speed than the original setting.

How much does a 3 ton roller weigh? The B&B mega roller (6,000 lbs. / 2,721 kg) is a high capacity pipe roller designed for heavy duty job-site use.

What does a BOMAG roller do? Bomag's new Smart Line single drum rollers are characterised by their large amplitudes, optimum weight distribution and high linear load. These result in ideal depth effect and, accordingly, reliably high surface coverage when compacting sand, gravel, crushed rock and poorly cohesive soils.

How heavy is a BOMAG 80 roller?

How much does a BOMAG 151 weigh? With an operating weight of 11,000 lbs and above, BOMAG tandem rollers are the first choice for many applications. Whether with cab or ROPS, high productivity and operating comfort come as standard.

Is a vibrating foam roller better than a ball? Foam rollers are often more suited to beginners as they are deemed more comfortable than massage balls. They also target larger lengths of muscle with more dispersed pressure, leading to greater comfort.

What are the disadvantages of foam rollers? However, opponents of foam rolling argue that the effects of the technique are 'substantially' less than massage and

myofascial release, largely because the foam roller is unable to penetrate deep enough into the tissues, and/or generate sufficient shear force in the fibres to break up the adhesions.

What's better, foam roller or massage gun? Massage Gun: The Verdict. Foam rollers and massage guns are both worthwhile recovery tools. Foam rollers are the better option for a lighter touch and larger muscle groups, while massage guns can target muscles and smaller areas with a deeper massage. This makes them more useful for specific pain points.

What are the negative effects of roller skating? What are the risks of roller skating? Any form of exercise has its inherent risks, but because of the speed involved in skating, it does carry a bit more risk. The most common injuries from roller skating are the result of falling — cuts and scrapes are common, but wrist sprains and fractures are also a possibility.

What are the side effects of foam rollers? The risks of rolling out muscles improperly are on par with getting too severe a massage — bruising, most of all. If you get bruised from foam rolling, you'll probably want to ice it. "And any sort of swelling or loss of function, range of motion, or strength — see a doctor immediately," says Lemmer.

What is the side effect of roller?

Which roller is best for compaction? Sheepfoot Roller: The sheep-foot rollers are ideally suited for the compaction of cohesive soils and these roller compact the soil by the combination of temping and kneading action.

Where are BOMAG rollers made? 4 production sites in: Alfonsine, Italy. Boppard, Germany. Changzhou, China.

What is the best compaction equipment for sand? In general, granular soil, gravel and sand are best compacted with vibratory equipment, which lets the particles bounce, twist and fall into a position that allows the least movement.

How heavy is a BOMAG roller?

[transnational families migration and gender moroccan and filipino women in bologna and barcelona new directions in anthropology, propagating succulents a guide to propagating succulents from leaves and cuttings succulent care by succulents and sunshine book 1, bomag tandem vibratory roller combination roller bw 125 adh bw 135 ad bw 138 ad bw 138 ac factory operating maintenance manual instant](#)

piper navajo service manual pa 31 310 prenatal maternal anxiety and early childhood temperament bioactive compounds and cancer nutrition and health 2018 schulferien ferien feiertage kalender marriage help for marriage restoration simple easy steps to rekindle any relationship advice help counseling eco r410a manual e46 bmw 320d service and repair manual movie soul surfer teacher guide homo faber max frisch answers of crossword puzzle photosynthesis and cellular respiration letter wishing 8th grade good bye fpgee guide aki ola science 1 3 the roots of terrorism democracy and terrorism v 1 kia sportage 1996 ecu pin out diagram hotpie the treasury of knowledge 5 buddhist ethics v 5the house of wisdom jonathan lyons mitsubishi automatic transmission workshop manual megan maxwell google drive preparing an equity rollforward schedule woodcockjohnson iv reports recommendations and strategies corso di chitarra x principianti emerging model organisms a laboratory manual volume 2 the golden ratio lifestyle diet upgrade your life tap your genetic potential for ultimate health beauty longevity chapter 5 study guide for content mastery answer key chemistry the of discipline of the united methodist church 2012 physical education content knowledge study guide harcourt school publishers think math georgia georgia phase 2 package geometryc grades chapter 11 think math grade 5 nsf think math indianhistoryand culturevk agnihotrifree sourcebookfor thehistoryof thephilosophy ofmind philosophicalpsychology fromplato tokant studiesin thehistoryof philosophyofmind dynamicprogramming andoptimal controlsolution manualintegrahelms manualcleveland cliniccotinine levelsmathematicalstructures forcomputerscience freshfromthe farma yearof recipesandstories sharplc 32le700eru lc52le700etv servicemanual downloadbomaghypac c766cc778 bworkshop servicerepairmanual download1999 yamahaf4mlhxoutboard servicerepair maintenancemanualfactory workbooktop notchfundamentals oneedition howisrael

lostthefour questionsbycramer richardben simonschuster 2005paperback
paperbackworldhistory 2studyguide bankmanagement timothykochanswer
opelinsignia servicemanualpayne airconditioner servicemanual
lgdehumidifiersmanuals googleinenvironment skgarg pinesofrome
trumpetcaliforniabed breakfastcookbookfrom thewarmthhospitality of127 californiab
bsand countryinnsbed breakfastcookbooks 3dpress chaucerianpolity
absolutistlineages andassociational formsin englandanditaly figuraeholtcalifornia
earthscience6th gradestudy guidebexemplar papersgrade12 2014cubcadet
selfpropelled mowermanualsavita bhabhiepisode 84touchstone student1
secondedition principlesofmarketing kotlerarmstrong9th editiondoctrineand
covenantsmadeeasier boxedset thegospel studyseriesreverse diabetesastep
bystepguide toreverseddiabetes andfree yourselffrom stressanxiety andpain
dictionaryof frenchslangand colloquialexpressions evanmoordaily sciencegrade4
manualfornew hollandtz18damower deck4age20 valvemanual