



2022 FLORICULTURE PROBLEM SOLVING

1. As an outgrowth of your high school horticulture program your FFA chapter has decided to establish a school vegetable garden to produce vegetables to donate to a local food bank. Your plans are to construct raised beds. Your chapter is going to build 12 beds. Each bed will be 10 feet long by 5 feet in width. Each bed will be constructed using 2" X 10" treated boards. How many cubic yards of soil will be needed to fill the 12 beds?
 - A. 499.8 cubic yards
 - B. 18.5 cubic yards
 - C. 240 cubic yards
 - D. 55.5 cubic yards

2. Your horticulture teacher ask you to figure how much osmocote, as a slow release fertilizer, you will need to apply to the containers that your program is growing as fall mums. You are given the table below to use in your calculation. You have planted sixty 6.5 inch standard pots and 30 eight inch mum pots with fall mums. You are told that the application rate needs to be at a medium level for the 6.5 inch pots and at the high level for the 8 inch mum pans. How many pounds of osmocote should be applied?

Application Rates Per Container (Grams)

CONTAINER SIZE	LOW	MEDIUM	HIGH
6 inch azalea	3	7	11
6.5 inch azalea	3	8	13
6.5 inch standard	4	9	13
8 inch azalea	6	14	22
8 inch mum pan	6	15	23
9 inch mum pan	10	23	36
10 inch basket	11	26	39

Conventional Measurers:

1 tsp. = 5 grams 1/3 cup = 95 grams 28 grams = 1 ounce
 1 tbsp. = 16 grams 1/2 cup = 142 grams 454 grams = 1 pound
 1/4 cup = 71 grams 1 cup = 285 grams

- A. 1.0 pound
- B. 1.98 pounds
- C. 2.71 pounds
- D. 3.2 pounds

3. You are employed by a local retail flower shop. Your employer sends you to the wholesale florist to pick up an order that you emailed to the wholesaler. When you arrive the order is ready and it is loaded into the flower shop vehicle that you drove to pick up the order. You look at the invoice presented to you and you make sure everything is correct. The total amount of the order is indicated at the bottom of the invoice. The terms of payment are also on the bottom of the order. There is no charge for pick up but there is a 5% delivery charge. There is a 2% charge for debit or credit payments. The sales tax where the wholesale and the retail flower shop is located is 7%. Your employer sent with you a signed check for payment. The total amount of the products you are taking back to the flower shop totaled \$1,427.35. What is the amount of money you write the check for to pay for the order you picked up?
- A. \$1,527.26
B. \$1,427.35
C. \$1,498.62
D. \$1,555.81
4. You are working in a greenhouse and need to mix fertilizer for a 75 gallon fertilizer tank. The tank has a fertilizer injector to mix the concentrated fertilizer into the water when the plants are watered/fertilized. You want to mix fertilizer for the tank at a 1:100 dilution rate at 250 parts per million. You must decide how much fertilizer to mix for the concentrated solution going into the tank. How much fertilizer to do you mix in the 75 gallon tank? Use the chart below to arrive at your answer.

Dilution Rate	Parts Per Million Nitrogen						
	25	50	75	100	200	300	400
	Ounces Per Gallon						
1:200	3.33	6.43	9.65	12.85	25.70	38.60	51.40
1:100	1.61	3.22	4.82	6.43	12.85	19.227	25.70
1:15	0.25	0.50	0.75	1.00	2.00	3.00	4.00

- A. 60.23 pounds
B. 90.33 pounds
C. 75.28 pounds
D. 30.14 pounds

5. You are ordering potting soil for your greenhouse's spring crops. Your plans are to purchase potting soil by the bag. You need enough potting soil to fill the following number of containers:

75 10" baskets without saucers
 35 8" baskets with saucers
 325 10" baskets with saucers
 250 4" square pots
 725 6" azalea pots
 320 8" azalea pots
 220 1203 inserts
 115 1204 inserts

Use the following table to arrive at the number of bags of potting soil must be ordered.

Container	Pots per 2.8 cu bag
6" Standard	42
8" Standard	20
6" Azalea	53
8" Azalea	22
4" Square pot	130
4" Geranium pot	170
8" Bulb Pan	29
10" Decorative Pot	12
10" Bowl	21
8" Basket/no saucer	28
10" Basket/no saucer	15
8" Basket/saucer	26
10" Basket/saucer	14
1203 Inserts	20
1204 Inserts	21

Answers:

- A. 89 Bags
 B. 82 Bags
 C. 77 Bags
 D. 69 Bags

6. You work for a greenhouse operation. There are five 28 feet X 72 feet greenhouses in your operation. You need to mix some Mavrik pesticide to spray in the greenhouses for control of thrips. You read the label directions and it tells you that this pesticide is labeled for indoor use in greenhouses to control this particular pest. The directions also tell you to mix 3 teaspoons of Mavrik per five gallons of water. You have a 100 gallon sprayer that you will use to apply the pesticide. You also read that 100 gallons of spray will usually cover 20,000 square feet. Of the following answers which one is correct for how many gallons of spray to mix for the five greenhouses and how much pesticide do you mix in the tank to spray:
- A. 50 gallons of spray mix and 5 ounces of Mavrik
 - B. 100 gallons of spray mix and 5 ounces of Mavrik
 - C. 100 gallons of spray mix and 10 ounces of Mavrik
 - D. 50 gallons of spray mix and 10 ounces of Mavrik
7. You are employed by a retail flower shop. You have completed a vase arrangement for delivery to a customer. You are finalizing the invoice to give to the customer when the flower arrangement is delivered later in the day. Your flower shop prepares invoices for the cost of the flowers at 2.5 times markup of the wholesale cost of the flowers. The vase cost is \$7.00. You determine that the wholesale cost of the flowers and foliage used in the arrangement is \$49.00. There is a \$20 delivery charge and sales tax you have to charge is 6.5%. What is the total amount of the invoice that will be given to the customer when the flower arrangement is delivered?
- A. \$79.64
 - B. \$149.50
 - C. \$137.92
 - D. \$157.92

8. In a greenhouse there is a drip line irrigation tube running the length of the entire growing bench. There are six of these growing benches in the greenhouse. The benches are 66 feet long. On each of these irrigation lines there are inline drip emitters installed every 6 inches. Each emitter is a $\frac{1}{2}$ GPH rate emitter.
- If you turn the water valve on that controls the water flow to all six greenhouse bench drip lines, how much water will be used for the plants in 30 minutes?
- A. 198 gallons
 - B. 396 gallons
 - C. 33 gallons
 - D. 132 gallons
9. Your school greenhouse has 625 pots of poinsettias in 8" azalea pots. You are planning on wrapping the poinsettias with foil and putting a bow on the pot when they are ready for sale to the public. You need to buy the ribbon for the bows and dressing the pots. You calculate that it will take 9 feet of ribbon to make the bow and dress the pot. You are going to use #40 ribbon and it is available in 100 yard rolls. How many rolls of ribbon do you need to purchase to get your poinsettias ready for the customers?
- A. 17 rolls
 - B. 12 rolls
 - C. 23 rolls
 - D. 19 rolls
10. In a 20 pound bag of soluble fertilizer with a 24-8-16 analysis which is the correct answer of how much actual pounds of nutrients are contained in the bag?
- A. 3.2 pounds of N, 1.6 pounds of P, 4.8 pounds of K
 - B. 4.8 pounds of N, 1.6 pounds of P, 3.2 pounds of K
 - C. 1.6 pounds of N, 4.8 pounds of P, 3.2 pounds of K
 - D. 24 pounds of N, 8 pounds of P, 16 pounds of K