

## 2016 National Floriculture CDE

### Problem Solving

#### Problem #1

1. You are an employee of Chilton Greenhouses in Indiana. Your supervisor wants you to spray a poinsettia crop with Sumagic Growth Regulator. The variety of poinsettias being grown is Freedom. Using the information provided how much Sumagic do you mix in a 1 and  $\frac{1}{2}$  gallon sprayer?
  - A. .9 ounces
  - B. 2.5 ounces
  - C. 3.9 ounces
  - D. .6 ounces

**Use the Sumagic Growth Regulator Information on your table to answer this question**

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## Problem Solving

### Problem #2

Growers must accurately determine the amount of fertilizer needed to mix stock solutions of fertilizers. Without referring to tables and charts on the fertilizer bag, growers can use formulas to calculate the amount of fertilizer needed. If you know the rate of fertilizer (in ppm N), the percentage of nitrogen in the fertilizer, and the injector ratios, then calculations are simplified by the following formula:

$$\text{Amount of fertilizer to make 1 volume of stock solution} = \frac{\text{Desired concentration in ppm}}{\% \text{ of element in fertilizer}} \times \frac{\text{Dilution factor}}{\text{Constant}}$$

The dilution factor is the larger number of the fertilizer injector ratio and the conversion constant C is determined by the units desired:

Unit	Conversion Constant
Ounces per gallon	75
Pounds per gallon	1200
Grams per liter	10



You have 1:50 fertilizer injector and a fertilizer with an analysis of 20-10-20. You want to apply 200ppm solution of nitrogen at each watering. Use the formula above to determine how many ounces of fertilizer you would need to weigh out to make 1 gallon of concentrate. *Round up to nearest whole number*

A. 3

B. 7

C. 15

D. 41

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### Question #3

You just received an order for a floral arrangement. The customer has asked for a vase arrangement that contains the following.

12 Red Roses                      3 Stems of Lilies                      5 Stems of Liatris

Leather Leaf                      Wax flower

Designed in a 10.5" vase

Now you need to secure the product from RC Wholesale to fill the order. You have just received a weekly sales flyer from RC Wholesale that provides the cost of each item. Your store manager has asked that you provide him a cost of materials on this order before securing the product. It is important to know what the company will have to spend to fill this order. Keep in mind there may be restrictions or conditions regarding the sale.

What is the total cost of product to fill this order.

- A. \$98.00
- B. \$90.00
- C. \$86.00
- D. \$93.00

**Use RC Wholesale Flyer For This Page**

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## Problem Solving

### Question #4



You were just hired on as the greenhouse manager for Sunbelt Greenhouses in North Florida. You notice while conducting a greenhouse inspection that one of your greenhouse heaters is no longer working properly and you need to order a new heater. The greenhouse is 90 feet long and 30 feet wide with a ceiling height of 15 feet. During the winter months you know you like to keep the inside greenhouse temperature around 50°F. The lowest the outside temperature usually drops in your area is 10°F. You will like to purchase a heater similar to what you already have. The supply company tells you they have the following sizes available in that model:

<a href="#">103656N</a>	Modine Power-Vented Natural Gas Heater	Max Output 120K BTU	\$1,039.00 /EA
<a href="#">103657N</a>	Modine Power-Vented Natural Gas Heater	Max Output 140K BTU	\$1,139.00 /EA
<a href="#">103658N</a>	Modine Power-Vented Natural Gas Heater	Max Output 160K BTU	\$1,229.00 /EA
<a href="#">103659N</a>	Modine Power-Vented Natural Gas Heater	Max Output 200K BTU	\$1,459.00 /EA
<a href="#">103660N</a>	Modine Power-Vented Natural Gas Heater	Max Output 240K BTU	\$1,629.00 /EA
<a href="#">103661N</a>	Modine Power-Vented Natural Gas Heater	Max Output 280K BTU	\$1,799.00 /EA
<a href="#">103662N</a>	Modine Power-Vented Natural Gas Heater	Max Output 320K BTU	\$1,899.00 /EA

#### *BTU's Calculation*

*\*Cubic feet to be heated\* x 0.133 x Desired temperature rise\*\* = BTUs needed*

*\*\* Subtract the lowest expected outside temperature from the desired inside temperature.*

***Determine which of the following heaters you should order and then calculate the total cost to your company including 7% sales tax and a 15% shipping fee. \*Note shipping fees and taxes should be calculated from the subtotal.***

A. \$1,779.98

B. \$1,987.38

C. \$2,004.48

D. \$2,194.78

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### Question #5

Question 5: [Use Osmocote label]

As a grower for a greenhouse production operation, you have decided to pre-plant incorporate a low rate of the slow-release fertilizer Osmocote 14-14-14 into your soilless root medium prior to potting up hanging baskets. You will grow the crop with typical application of soluble fertilizer, but you are adding in the low rate of slow-release fertilizer to provide some nutrition in the market channel and during the time that the customer is caring for the basket. You want to mix just enough root medium to pot up 100 – 12-in hanging baskets (2.2 gal each).

Conversion: 202 gal per cubic yard

- a. 3.5 lb Osmocote 14-14-14 per cubic yard root medium
- b. 5.0 lb Osmocote 14-14-14 per cubic yard root medium
- c. 8.5 lb Osmocote 14-14-14 per cubic yard root medium
- d. 16 lb Osmocote 14-14-14 per cubic yard root medium

**USE Osmocote Label For This Page**

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## Problem Solving

### Question #6

A Shipment of plants have arrived and need to be processed. You and your team members have been asked to handle this task. Your part of the task is to process the 10 inch Peace Lilies and the 10 inch Crotons for the showroom floor. You must place the plants into a 10 inch wicker basket and then calculate the retail price for each plant by using the following formula.

Formula:

Cost of plant and basket x 2.5

Then add 20% for labor and you will have the retail cost of each plant.

What will the retail price be for each plant that you have been assigned to handle?

- A. \$47.50 and \$37.50
- B. \$45.00 and \$35.00
- C. \$50.00 and \$38.00
- D. \$57.00 and \$45.00



# Country Gardens

405 Palm Lane

Westgreen, Georgia 31567

## INVOICE

QTY	Item	Unit Price	Total
5	6" Potted Hydrangeas	\$9.00	\$45.00
6	8" Potted Peace Lilies	\$11.00	\$66.00
3	6" Potted Crown Of thorns	\$5.00	\$15.00
7	8" Potted Peruvian Lilies	\$9.00	\$63.00
2	10" Potted Peruvian Lilies	\$12.00	\$24.00
3	8" Potted Mass Cane	\$12.00	\$36.00
2	10" Potted Peace lilies	\$15.00	\$30.00
1	10" Potted Cast Iron Plant	\$12.00	\$12.00
1	10" Potted Croton	\$11.00	\$11.00
5	8" Wicker Baskets	\$3.00	\$15.00
5	10" wicker Baskets	\$4.00	\$20.00
5	12" Wicker Baskets	\$5.00	\$25.00
Grand Total			\$362.00

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## Problem Solving

### Question #7

You have just been hired by Syngenta Flowers as a company consultant regarding Cyclamen production. A customer calls that recently purchased 10,000 seeds from you to grow out in 288 cell trays. They are very happy with the seed and explain that the Cyclamen plugs are coming along nicely and are about to enter into Stage 2 of growth. The customer is wondering what advice you can give them when entering into Stage 2 to ensure the plants continue to thrive.

Which of the following statements would be accurate advice for Stage 2 of Cyclamen Production according to the Syngenta Cyclamen Plug Production Chart?

- A. Cyclamen plugs should be given normal daylight, with a lowered moisture level of 5-4 and temperatures should be lowered to 54-57 F.
- B. Cyclamen plugs should be kept in the total darkness for the first ten days of Stage 2 production then given natural day length. They should also have fleece covering and pH should be maintained at around 6.0.
- C. Cyclamen plugs should be not be covered and given light similar to natural day length during Stage 2 production. Plants should also be kept at 100% humidity.
- D. Cyclamen plugs should be kept at 100% humidity with fleece covering on the trays. Moisture levels need to be maintained between 4 and 5. Also, plants in Stage 2 production should be given light similar to natural day length.

**Use Cyclamen Production Chart For This Page**

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## Problem Solving

### Question #8

[Information from: <https://www.koppert.com/products/products-pests-diseases/swirski-mite-plus/>]

You maintain a pest scouting program and have found only a couple thrips on your yellow sticky cards that are used to monitor pest presence. Because this is an extremely light infestation, you are going to apply the predatory mite *Amblyseius swirskii* (SWIRSKI-MITE) to try to avoid pesticide application for the time being. The predator is applied in sachets that are hung on crop plants. How many sachets should you order to distribute around your greenhouse with 3,175 square feet production space? Rate information is available in the following table.

- a. 30 sachets
- b. 350 sachets
- c. 700 sachets
- d. 900 sachets

Rates				
SWIRSKI-MITE PLUS	yd <sup>2</sup> /sachet	m <sup>2</sup> /sachet	interval (days)	remark
preventive	2	2½	28-42	-
curative light	2	2½	28	Start when thrips or whitefly is present; distribute throughout the entire production space
curative heavy	1	1	28	Distribute in infected areas only, always in combination with other beneficials

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### Question #9

You have been asked to grow Petunia-Easy Wave Series from seed for the spring market. The petunias are to be finished in 1801 flats. Using the Ball Catalog **Seed Product Information Guide** which one of the crop schedules below is correct for the spring sale?

	Sow Seed	Transplant	PGR	Market
A	February 17	March 17	March 24	April 15
B	December 2	January 13	January 20	April 15
C	January 27	March 10	March 24	April 15
D	January 27	March 10	March 17	April 15

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#### Question #10

Question 1: Your greenhouse production business has a contract to grow 125 flats of bedding impatiens to a local landscaping contractor. Each flat has a 0804 cell pack insert. You will source the plugs from Tagawa Greenhouses, which offers the plugs in 288-size plug trays. Each plug tray is guaranteed to have 280 usable seedlings. What is the number of 288 plug trays of impatiens that you must order to be able to grow the plants to meet this contract?

- a. 5 plug trays
- b. 14 plug trays
- c. 15 plug trays
- d. 19 plug trays