

Kentucky FFA Association Floriculture CDE Problem Solving 2017

Question #1 (Irrigation)

You have decided to install an irrigation system in your greenhouse and calculated that it would require 25 irrigation heads to achieve complete coverage. Each irrigation head requires 15 gallons per hour of water flow. Your water system has a water flow rate of 4 gallons per minute. How many irrigation heads could you run at one time? Round your answer to the closest number.

- a. 16 heads b. 20 heads c. 13 heads d. 4 heads

Question # 2 (Media)

When propagating foliage plants you stick cuttings in 2 ¼" containers. Your production goal for the month of June is to stick 9,600 Crotons, 14,400 Dieffenbachia, and 4,800 Dracaena cuttings. How many cubic yards of media will be needed for the month of June?

Container Potting Guide	Container Size	No./Bushel	No./cubic yard
	6 inch azalea	20	440
	4 inch standard	58	1,276
	3 inch standard	134	2,948
	2 ¼ inch standard	220	4,840
	2 inch standard	316	6,952

- a. 4 cubic yards b. 6 cubic yards c. 8 cubic yards d. 10 cubic yards

Question #3 (Pricing)

Amy decides to start a plant rental business for her SAE in the 10th grade. With the help of her FFA Advisor, she determines that she will have the following expenses:

30 house plants for rental with an average wholesale cost of	\$14.67 each
2 cases (12 cans/case) of leaf shine	\$1.83/can
Monthly Miscellaneous Expenses	\$17.50

If Amy averages renting 25 plants per month, how much would she need to rent each plant for to make \$37.50 per month profit after paying the expenses? (All expenses must be paid for the first year of her enterprise.)

Round to the nearest \$0.50.

- a. \$2.50 b. \$4.00 c. \$1.50 d. \$5.00

Question #4

Situation: You are building a new greenhouse. The dimensions are 20 feet wide X 96 feet long. The airflow required is 8 cfm per square foot of greenhouse area.

Problem: Using the chart below, select the fan that meets the minimum capacity requirements.

Capacity = 8 cfm x area of greenhouse

Fan	Diameter	Rpm	Capacity (cfm)	Motor (hp)
A	30"	650	8,570	1/8
B	36"	476	10,900	1/2
C	42"	462	16,800	1
D	48"	382	21,400	1

Question #5

Situation: You are planning to build a new greenhouse. The dimensions are 20 feet wide X 96 feet long. You have a \$13,000 budget for erection and materials cost.

Use the chart below to select the type of greenhouse that would best fit your budget.

House	Type	Materials \$/ft ²	Erection Labor Cost \$/ft ²	Total \$/ft ²
A	Conventional Glass	\$7.00-\$9.00	\$3.00-\$4.00	\$10.00-\$13.00
B	Steel Pipe Polycarbonate Cover	\$4.00-\$6.00	\$0.40-\$0.60	\$4.40-\$6.60
C	Steel Pipe Poly Cover	\$1.50-\$2.50	\$0.30-\$0.50	\$1.80-\$3.00
D	Wood Greenhouse Poly Cover	\$1.00-\$1.50	\$0.35-\$0.60	\$1.35-\$2.10