



2002 State Competition
FFA Agricultural Mechanics Contest
University of Missouri
50 points

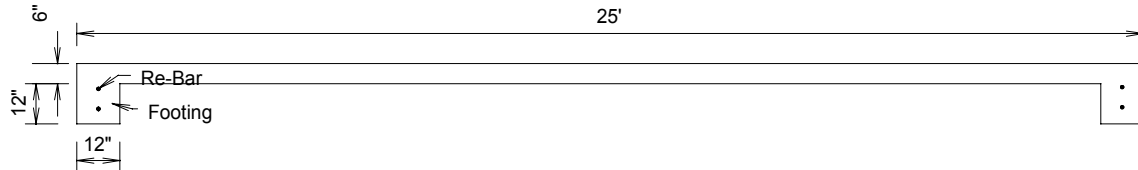
Contestant # _____
Contestant Name _____
Chapter _____

Concrete & Plumbing

You are about to pour concrete for a round grain bin. Use the diagram of a concrete grain bin pad to answer the following questions:

20 pts. (5 points each)

Cross-sectional view of the concrete grain bin pad:



- How many cubic yards of concrete must be ordered to pour this pad? Use a 10% waste factor.
 - 13.5 Cubic yards
 - 13 cubic yards
 - 12.5 cubic yards
 - 12 cubic yards
- Two rings of $\frac{1}{2}$ " rebar will be used to reinforce the footing of the bin pad. Using a minimum of 24 times the rod diameter overlap, how many 20 foot lengths of rebar will be needed if the rings are placed in the center of the footing? (note diagram above)
 - 11
 - 10
 - 9
 - 8
- Wire mesh will also be used as reinforcement. 6" mesh will be used, 4' wide x 150'/roll. How many rolls are needed if the mesh is overlapped 1 square? Assume the wire mesh extends to within 2 inches of the edge of the concrete pad.
 - 4
 - 3
 - 2
 - 1

4. Assume you are using a 6 bag mix with a 5:1 water cement ratio. How many gallons of water will be added per cubic yard?
- A. 30
 - B. 15
 - C. 20
 - D. 12

Identification

10 pts (1 pt. Each)

Directions: Identify the marked objects and match with the most correct answer.

- | | | |
|-----------|--------------------------|------------------------------|
| 1. _____ | A. Male to Male Bushing | K. Concrete Finishing Trowel |
| 2. _____ | B. ½" to ¾" Male Adapter | L. 45 degree Elbow |
| 3. _____ | C. Threaded Reducer | M. Male to Female Bushing |
| 4. _____ | D. ½" Pipe Coupler | N. 1" Union |
| 5. _____ | E. 1 ½" Union | O. Gate Valve |
| 6. _____ | F. Cap | P. 30 Degree Elbow |
| 7. _____ | G. ½" Female Adapter | Q. ¾" Pipe Coupler |
| 8. _____ | H. Ball Valve | R. ½" to ¾" Female Adapter |
| 9. _____ | I. 90 Degree Elbow | S. Tee Connector |
| 10. _____ | J. Edging Trowel | T. ¾" to 1" Male Adapter |

