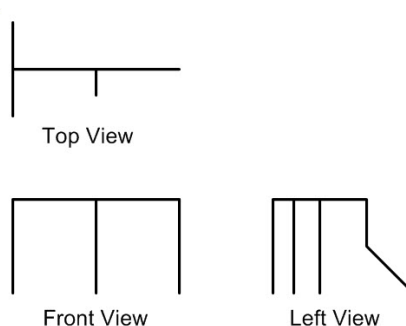


This practice exam will require you to have a calculator, pencil, scrap paper, a copy of the 2005 National Plumbing Code and will contain many similar questions as the current Plumbing Red Seal trade certification. The real Red Seal exam will contain 125 questions from within the following eight skill groups:

<b>Skill Groups</b>
1. Occupational Skills
2. Piping Preparation and assembly
3. Drainage, Waste, Vents and Private Sewage Disposal
4. Water Service and Distribution
5. Fixtures, Appliances and Water Treatment Systems
6. Hydronic Heating Systems
7. Specialized Systems
8. Maintenance and repairs

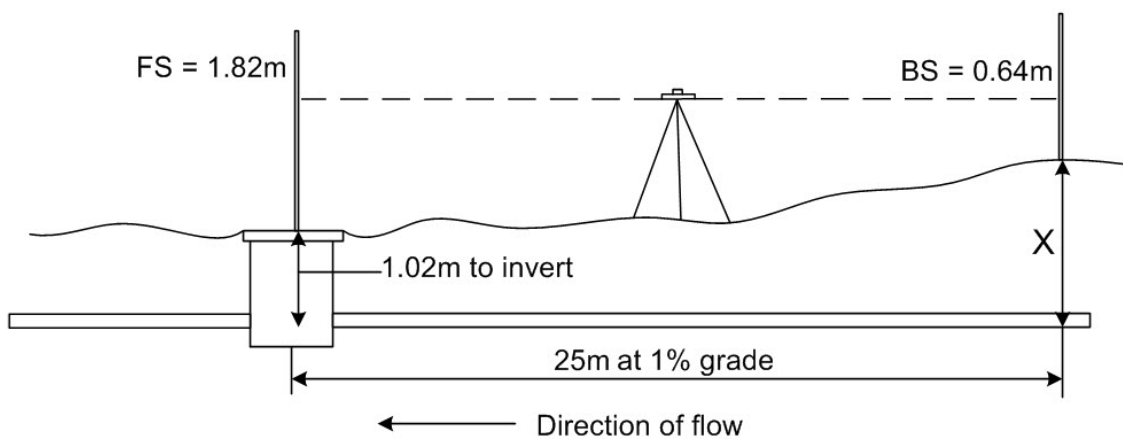
I hope you find this practice exam helpful and feel free to print it, share it or even republish it, as long as the file remains unedited. If you notice any errors or would like to contribute questions to the exam, please email me at: [exam@plumbinghelp.ca](mailto:exam@plumbinghelp.ca)

1. You are required to use a 20 foot ladder placed up against a building that is 40' high. At what horizontal distance from the base of the building must the ladder be?
  - a. 4'
  - b. 5'
  - c. 6'
  - d. 7'
  
2. Confined spaces are hazardous environments because they usually have:
  - a. explosive atmospheres
  - b. restricted access and egress
  - c. flood hazards
  - d. limited room for maneuverability
  
3. Scaffolding erected \_\_\_\_\_ feet above the ground must have guard rails.
  - a. 4
  - b. 6
  - c. 8
  - d. 10
  
4. Class "A" fire extinguishers are used on and contain.
  - a. flammable liquids, CO<sup>2</sup>
  - b. Metal, CO<sup>2</sup>
  - c. Electrical components, foam
  - d. Combustible materials, Water
  
5. When using a Hilti powder actuated fastening tool, the device fails to fire when the trigger is pulled. The first thing you should do is?
  - a. keep the tool in position and wait 30 seconds
  - b. remove the cartridge
  - c. inspect the magazine
  - d. depress the trigger again
  
6. Using the reference drawings below, determine how many 90° fittings would be required to construct the piping arrangement.
  - a. 4
  - b. 5
  - c. 6
  - d. 7



7. How many 2" pipes does it take to equal the volume capacity of a 6" pipe?
- a. 2
  - b. 5
  - c. 7
  - d. 9
8. When using oxy-fuel cutting and welding equipment, a flashback arrestor protects the operator from?
- a. flame traveling into the hoses
  - b. bright flashes
  - c. electrical shock
  - d. material blowback
9. Horizontally run  $\frac{3}{4}$ " type M copper pipe must be supported every:
- a. 1 meter
  - b. 1.2 meters
  - c. 2.5 meters
  - d. 3 meters
10. Find the depth of the pipe invert at dimension X shown on Figure 1.
- a. 1.85m
  - b. 1.90m
  - c. 1.95m
  - d. 2.00m

FIGURE 1



11. Water that is determined to have a PH of 5.5 would be considered:
- a. mildly alkaline
  - b. very alkaline
  - c. very acidic
  - d. mildly acidic

12. Copper tube permitted for underground water distribution.
- type M soft
  - type L hard
  - type K soft
  - DWV
13. Which is not an approved method for joining cast iron waste pipe:
- compression joint
  - welded joint
  - mechanical joint
  - caulked joint
14. Dielectric unions are used to:
- ground metallic pipe
  - connect plastic to copper pipe
  - to prevent shocks
  - prevent corrosion
15. When installing glass piping; if one end needs to be field cut, the ends should be joined:
- plain to plain
  - bead to bead
  - bead to plain
  - bead to hub
16. Bell and spigot cast iron is installed with the:
- bell upstream
  - spigot upstream
  - bell downstream
  - doesn't matter
17. What force would be exerted on the gate of a closed 6" gate valve if the water pressure acting on it measured 46 Psig.
- 867
  - 1300
  - 2604
  - 5202
18. Asbestos cement pipe installed below a 60 mm thick concrete floor must be at least how deep?
- 150mm
  - 300mm
  - 600mm
  - 1.2M

19. What is the maximum practical lift of a shallow well jet pump?
- 22'
  - 25'
  - 29'
  - 33.9'
20. A backwater valve may be installed in a building drain provided that it is:
- properly vented
  - normally open
  - 3" or larger
  - trapped upstream
21. The discharge from a sump pump shall have the following fittings installed in order, in the direction of flow:
- check valve, union, shut-off valve
  - shut-off, coupling, check valve
  - check valve, shut-off valve, union
  - union, check valve, shut-off valve
22. When a well pump turns on as soon as a faucet is used the most likely problem is:
- water logged pressure tank
  - defective pressure switch
  - foot valve not holding
  - pump impeller is worn out
23. A 4" cast iron pipe with 1" insulation is to pass through a wall. How large a diameter hole is required to be cut?
- 5"
  - 5.5"
  - 6"
  - 6.5"
24. A gear pump is a positive displacement pump and must be installed with a:
- pressure tank
  - pressure switch
  - pressure relief valve
  - pressure reducing valve
25. What type of trap is not permitted in a drainage system:
- S trap standard
  - bell trap
  - P trap
  - drum trap

26. Where is the jet located in a deep well?
- at the pump
  - below the foot valve
  - above the foot valve
  - top of the well
27. How would you increase the length of flush on a flushometer?
- turn regulating screw clockwise
  - turn regulating screw counter clockwise
  - remove vacuum breaker
  - throttle the stop valve
28. Six equally spaced lav's are to be installed along a wall that is 530 cm long and will be vented with dual vents. Determine the center to center distance between vents if the fixtures are each 51 cm wide.
- 133cm
  - 166cm
  - 177cm
  - 188cm
29. A drainage pipe suspended from a ceiling inside a building at its most upstream end is 7.5" from the ceiling to the center of the pipe. What will the measurement be from the ceiling to the center of the pipe if it travels 26 feet horizontally, has an 8 foot horizontal offset then continues another 37 feet.
- 17.75"
  - 20.5"
  - 23.25"
  - 25.25"
30. What is the minimum length of a trap arm?
- no minimum
  - 2 pipe diameters
  - 12"
  - 18"
31. A branch with 34 fixture units discharges into a sewage sump. What is the minimum size vent required for the sump?
- 1 1/2"
  - 2"
  - 3"
  - 4"

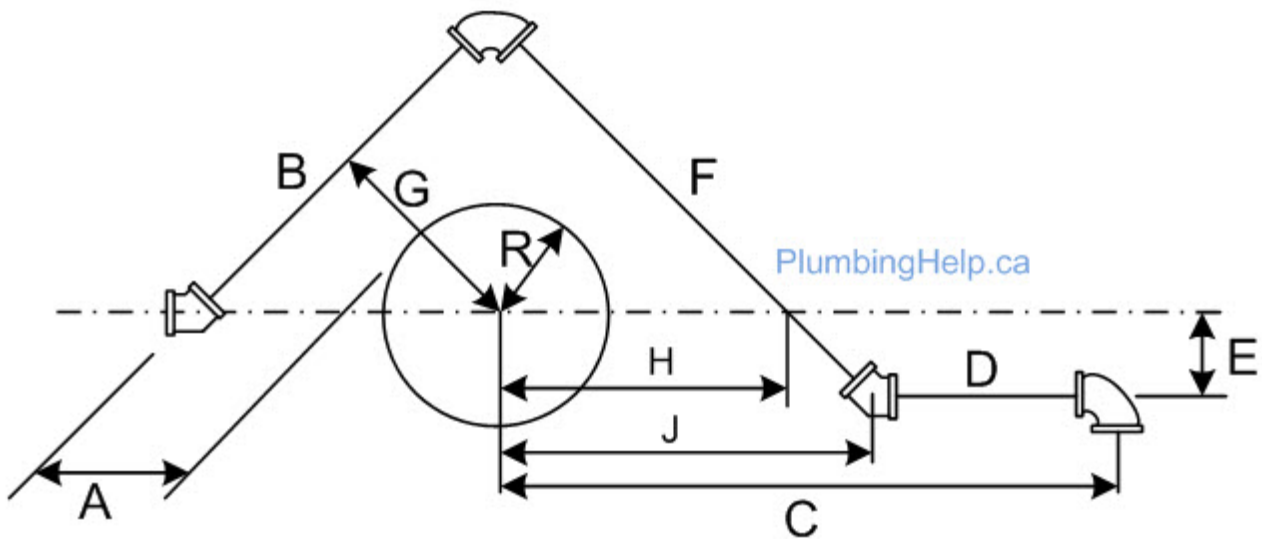
32. What is the maximum vertical fall of a water closet trap arm?
- 1m
  - 1200mm
  - 2m
  - 3m
33. A building's roof measuring 90m by 50m would require how many flow controlled roof drains?
- 6
  - 8
  - 10
  - 12
34. A flat roof measuring 20m by 26m with a horizontal wall on one side extended up 6m by 20m. Size the circular rain water leader if the local 15 minute rain fall intensity is 24mm.
- 4"
  - 5"
  - 6"
  - 8"
35. A laboratory sink that receives bio-hazardous waste must be installed with a:
- backwater valve
  - check valve
  - Interceptor for organic waste
  - cleanout above the flood level rim
36. The absorption rate of a septic field is determined by:
- soil analysis
  - percolation test
  - water table
  - linear feet of leech field
37. Medical gas piping is most often joined by:
- lead free solder
  - flared joints
  - silver braze
  - compression joints
38. A circuit vented branch with a horizontal offset that uses two 45° fittings will require a:
- two relief vents
  - increase one pipe size
  - additional circuit vent
  - not permitted

39. Determine the amount of expansion that will occur when a 15m ABS pipe has a temperature change of 40°C.

- a. 25mm
- b. 36mm
- c. 47mm
- d. 54mm

40. Which backflow preventer is not a testable device?

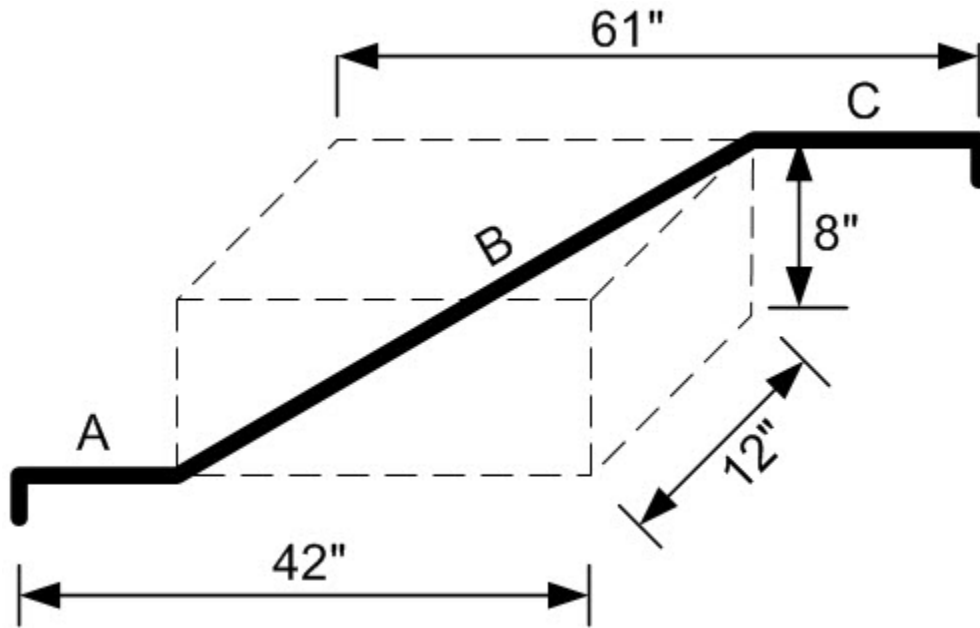
- a. PVB
- b. DCAP
- c. RP
- d. DCVA



41. Find the length of pipe "D" if (A=50mm, R=150mm, C=1400mm, E=30mm)

- a. 1087.2mm
- b. 1117.2mm
- c. 1176.8mm
- d. 1232.6mm



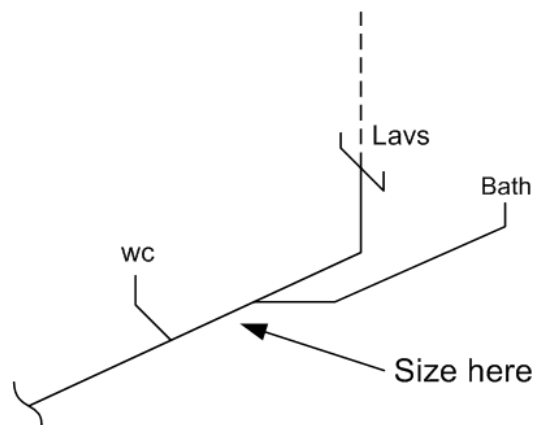


42. The image above shows a 45° rolling offset. Find the length of pipe “C”.
- 43.58”
  - 44.58”
  - 45.58”
  - 46.58”
43. A properly cut thread on black iron pipe should allow how many hand turns with a fitting?
- 1 ½
  - 2 ½
  - 3 ½
  - 4 ½
44. A well with a water tight casing requires a minimum standoff distance from a septic system of:
- 50m
  - 20m
  - 15m
  - 30m
45. An air conditioner that discharges 0.05 L/s of condensate into a floor drain, would equate to how many fixture units?
- 1
  - 2
  - 8
  - 45

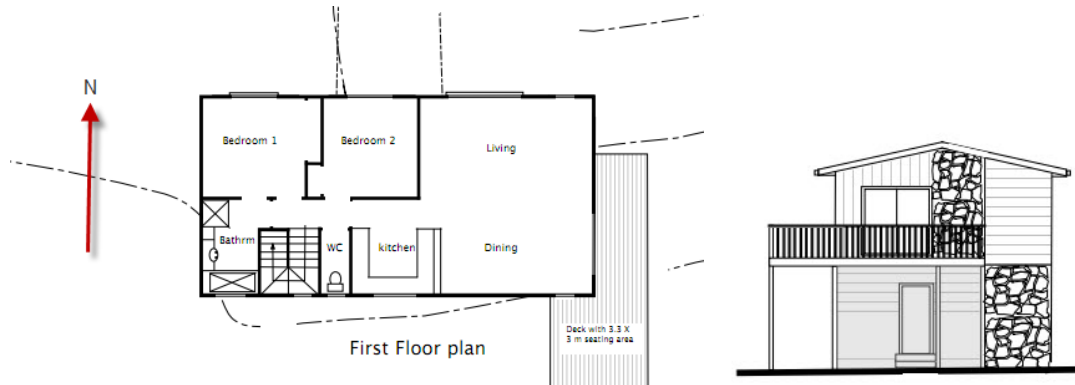
46. An interceptor may act as a trap for a fixture provided that:
- it has a 38mm water seal
  - it is located within 8' of the fixture
  - vent is increased one size
  - all of the above
47. Underground piping installed in a dug trench should be covered with appropriate backfill to a height of:
- 100mm
  - 150mm
  - 300mm
  - 600mm
48. Which is not a hot water heating piping system:
- two pipe reverse return
  - series loop
  - two pipe direct return
  - one pipe gravity return
49. The ideal location for a circulator pump installed in a hot water heating system is:
- on the return close to the boiler
  - on the supply after the zone valve
  - on the supply before the expansion tank
  - on the supply after the expansion tank
50. A pipe that connects at its downstream end to two or more vent pipes and at its upper end to a vent stack or stack vent is a:
- header
  - circuit vent
  - branch vent
  - common vent

51. Size the pipe above at the location indicated.

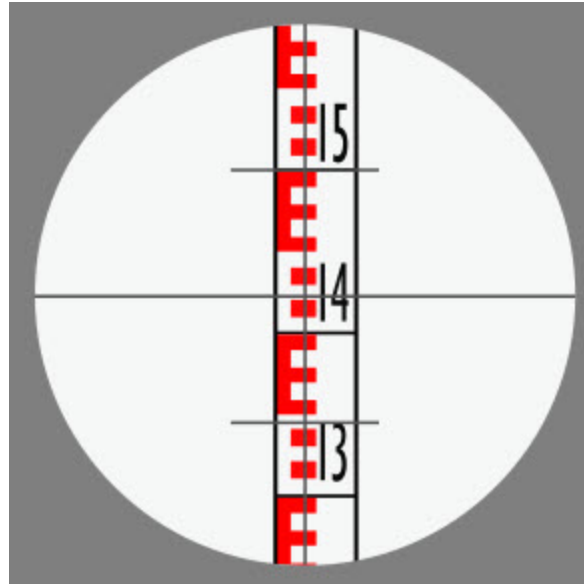
- 3"
- 1 1/2"
- 4"
- 2"



52. A horizontal cylindrical tank measuring 60cm in diameter and 150cm in length is partially filled with water to a height of 48cm. Find the volume of water.
- a. 361L
  - b. 364L
  - c. 368L
  - d. 371L



53. What elevation is shown on the right hand image?
- a. north
  - b. east
  - c. south
  - d. west
54. When determining the location to install a condensing boiler what must be considered?
- a. homeowners preference
  - b. existing vent location
  - c. central to heating units
  - d. near a floor drain
55. The discharge piping from a service water heater's temperature and pressure relief valve must discharge within \_\_\_\_\_ of a floor drain or suitable area.
- a. 150mm
  - b. 300mm
  - c. 600mm
  - d. not specified
56. Length is not a consideration when sizing this vent:
- a. relief vent
  - b. stack vent
  - c. header
  - d. circuit vent

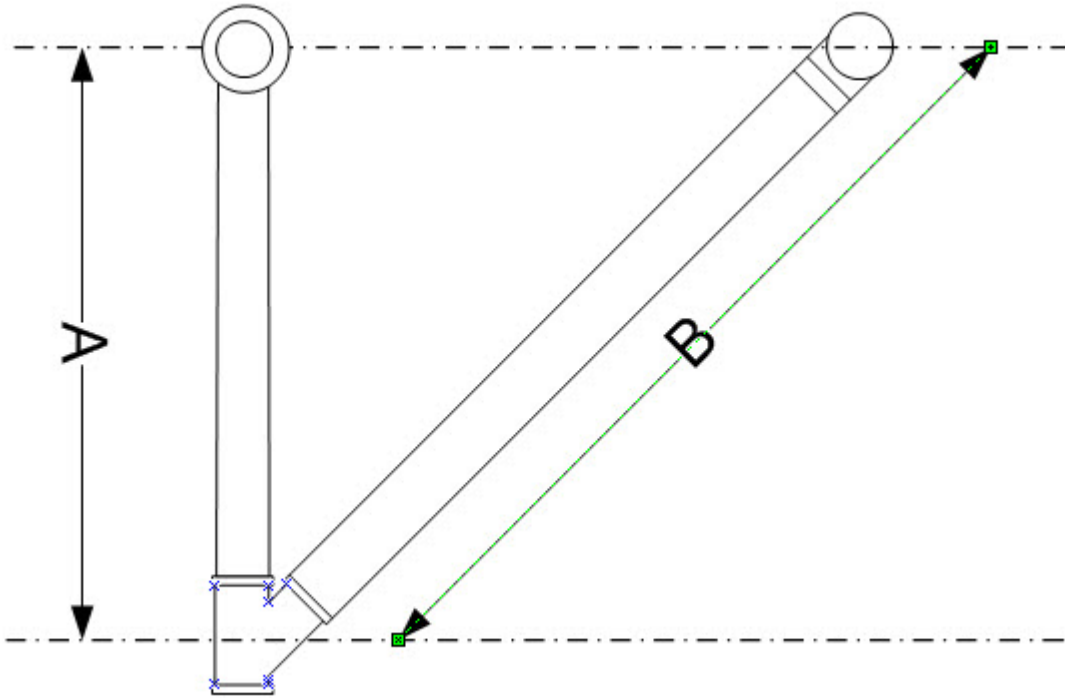


57. If viewing the rod above what elevation would you record?
- 14.12'
  - 14.22'
  - 14.22cm
  - 1.422m
58. A cross fitting may not be used in a DWV system except to connect:
- back to back fixtures
  - branches that receive clear water waste
  - four vents
  - fixture drains of three compartment sinks
59. A  $\frac{1}{2}$ " extracted tee may be formed from:
- $\frac{3}{4}$ " type M
  - $\frac{1}{2}$ " type K
  - $\frac{1}{2}$ " type L
  - $\frac{3}{4}$ " Type K
60. If four shower heads are installed along a wall, what would the minimum measurement be between the two outermost heads?
- 750mm
  - 2.25m
  - 1200mm
  - 1.8m
61. The minimum size for vents serving an oil interceptor are:
- 1  $\frac{1}{4}$ "
  - 1  $\frac{1}{2}$ "
  - 2"
  - 3"

62. A four wire zone valve is wired to:
- thermostat, transformer, hi limit, motor
  - transformer, hi limit, motor, circulator
  - thermostat, transformer, end switches
  - thermostat, transformer
63. Which of the following fixtures may not be indirectly connected to a drainage system:
- commercial dishwasher
  - sterilizer
  - drinking fountain
  - water softener backwash
64. The minimum size for mobile home service connections are:
- 3" sewer, 1/2" water
  - 3" sewer, 3/4" water
  - 4" sewer, 1" water
  - 4" sewer, 3/4" water
65. A pressure reducing valve must be installed if the water service pressure is above:
- 50 psi (344 Kpa)
  - 80 psi (550 Kpa)
  - 65 psi (450 Kpa)
  - 100 psi (690 Kpa)
66. A twin tank water softener will house the brine in one tank and the other tank will house the:
- zeolite
  - soda ash
  - green sand
  - activated carbon
67. Where should you locate a fin tube radiator within a room?
- where space permits
  - homeowners preference
  - under a window
  - doesn't matter
68. Water that has a dissolved mineral content of >181 mg/L would be deemed"
- soft
  - moderately hard
  - hard
  - very hard

69. A private water supplied cistern is fitted with a  $\frac{3}{4}$ " make-up water pipe supplied by a municipal system. What size air gap would be required:

- a.  $\frac{3}{4}$ "
- b. 1"
- c. 1-1/2"
- d. 2"



70. If the center to center measurement of pipe "A" is 8' 6"(2590mm) dimension "B" would be:

- a. 101" (257cm)
- b. 12' 1/4" (3662mm)
- c. 13' 4-1/8" (4064mm)
- d. 14' 7" (4445mm)

71. A  $\frac{3}{4}$ " cold water branch with a developed length of 6.5m could supply how many public use showers?

- a. 1
- b. 2
- c. 3
- d. 4

72. The abbreviation NPS refers to:

- a. pipe size
- b. wall thickness
- c. threads per inch
- d. thread taper

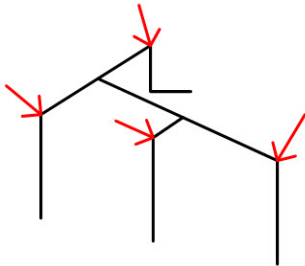
73. What is the maximum horizontal offset permitted in a 3" soil or waste stack that is serving as a wet vent?
- a. 1.2m
  - b. 1.8m
  - c. 2.5m
  - d. 3.5m
74. Which manufacturing method produces the strongest pipe:
- a. butt weld
  - b. extruded
  - c. spiral weld
  - d. lap weld
75. A toilet seat used in a public washroom must be:
- a. cover-less type
  - b. plastic non-permeable type
  - c. round type
  - d. elongated open front type

## Answers for Red Seal Practice Exam

1. **b** - Ladders are erected with a 4-1 ratio
2. **b**
3. **d** - From OSHA - **1910.28(c)(14)** Guardrails not less than 2 x 4 inches or the equivalent and not less than 36 inches or more than 42 inches high, with a mid-rail, when required, of 1 x 4-inch lumber or equivalent, and toeboards, shall be installed at all open sides on all scaffolds more than 10 feet above the ground or floor. Toeboards shall be a minimum of 4 inches in height. Wire mesh shall be installed in accordance with paragraph (a)(17) of this section.

4. **d** - <http://www.fire-extinguisher101.com/>

5. **a**



6. **a**

7. **d**

8. **a**

[http://en.wikipedia.org/wiki/Oxy-fuel\\_welding\\_and\\_cutting#Flashback](http://en.wikipedia.org/wiki/Oxy-fuel_welding_and_cutting#Flashback)

9. **c** - NPC Table 2.3.4.5

10. **c**

11. **d**

12. **c** - table 2.2.7.4.

13. **b**

14. **d**

15. **c**

16. **a**

17. **b** - area of the gate x psi

18. **c** - NPC A-2.3.5.2.(1)

19. **b**

20. **b** - NPC 2.4.6.4(2)

21. **d** - NPC 2.4.6.3.(6)

22. **a**

23. **d** - 4" pipe + pipe wall thickness  $\frac{1}{2}$ " + 2" insulation = 6.5"

24. **c** - to prevent over-pressurization downstream of the pump

25. **b** - NPC 2.2.3.1.(4)

26. **c**

27. **a**

28. **b**

29. **d**

30. **b** - NPC 2.5.6.3.(1)(b)

31. **c** - Size the branch by table 2.4.6.10.B. = 4", then size the vent by article 2.5.7.7

32. **a** - NPC A-2.5.6.3.(3)

33. **a** - NPC 2.4.10.4.(2)

34. **c** -  $12480 + 1440 = 13920L$  use Table 2.4.10.11

35. **d**

36. **b**

37. **c**

38. **c** - NPC A-2.5.2.1

39. **d** - NPC A-2.3.3.9.

40. **b**



<p>41. a</p> <p>42. d - <a href="http://www.plumbinghelp.ca/plumbing-math-rolling-offsets.php">http://www.plumbinghelp.ca/plumbing-math-rolling-offsets.php</a></p> <p>43. c</p> <p>44. c</p> <p>45. b - NPC 2.4.10.3.</p> <p>46. a</p> <p>47. c</p> <p>48. d</p> <p>49. d</p> <p>50. c</p> <p>51. a - NPC Table 2.5.8.1 - wet vent</p> <p>52. b - <a href="http://www.1728.com/cyltank.htm">http://www.1728.com/cyltank.htm</a></p> <p>53. b</p> <p>54. d</p> <p>55. b</p> <p>56. a - NPC 2.5.8.5.</p> <p>57. d - <a href="http://www.plumbinghelp.ca/philly_rod_grade.php">http://www.plumbinghelp.ca/philly_rod_grade.php</a></p> <p>58. c</p> <p>59. d - NPC 2.3.3.2.</p> <p>60. b -</p>	<p>61. a - NPC 2.5.5.2(4)</p> <p>62. c - <a href="http://www.taco-hvac.com/uploads/FileLibrary/102-111A_EBV.pdf">http://www.taco-hvac.com/uploads/FileLibrary/102-111A_EBV.pdf</a></p> <p>63. a</p> <p>64. d</p> <p>65. b</p> <p>66. a</p> <p>67. c</p> <p>68. d</p> <p>69. c - NPC 2.6.2.9.(2)</p> <p>70. b</p> <p>71. d - NPC notes to table A-2.6.1.1.(1)</p> <p>72. a</p> <p>73. c - NPC 2.5.2.1.(1)(i)</p> <p>74. b</p> <p>75. d</p>
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