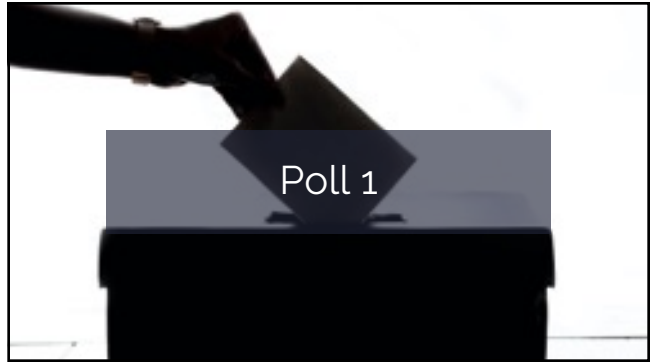
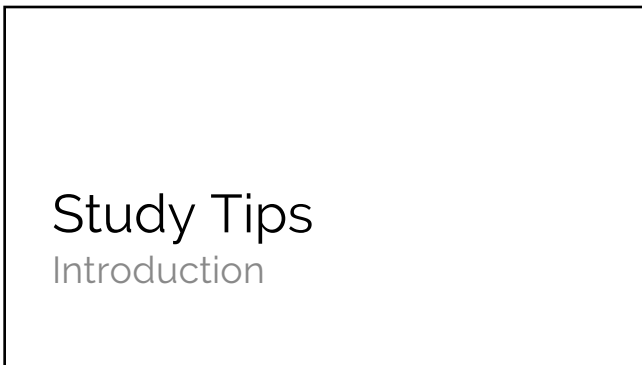


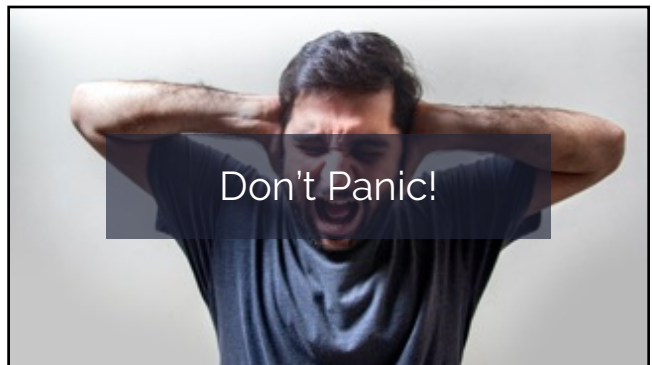
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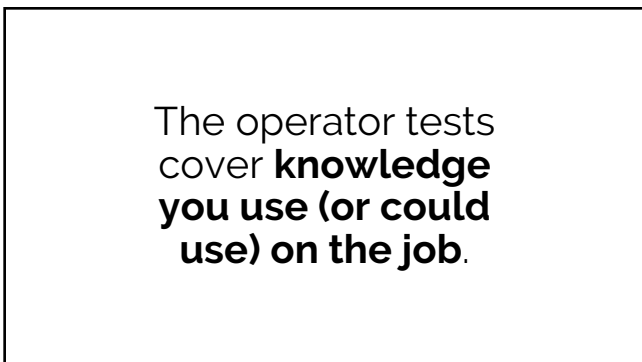
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6

## Operator Duties May Include

- Inspecting equipment
- Monitoring operating conditions, meters, and gauges
- Collecting and testing water and sewage samples



- Recording meter and gauge readings and operational data
- Documenting and reporting test results to regulatory agencies

- Operating equipment to purify and clarify water or to process or dispose of sewage
- Cleaning and maintaining equipment, tanks, filter beds, and other work areas

7

## Certified Operator

"a certified operator is a person who is certified by a certifying agency or commission as being qualified to supervise or operate one of the classifications of water supply systems or wastewater facilities".

8



Why study?

9


To **find** out where your **knowledge gaps** are

10



Basketball?

11

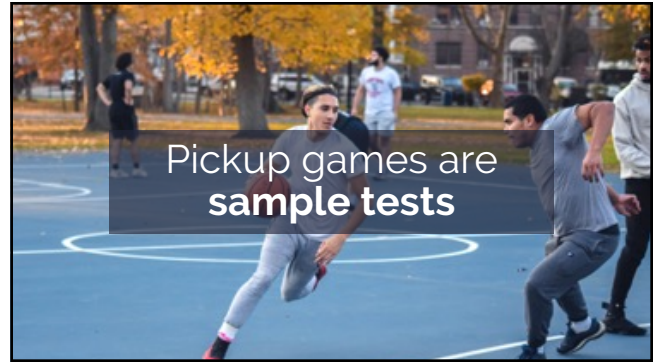


Study is **practice**

12

People with **better study methods** and strategies **score higher** on exams

13



14

Test areas you have trouble with may point to **gaps in your practical knowledge**

15

Use that information to **fill the gaps** by **rounding out** your **skill sets.**

16



17

If your test outcome isn't what you wanted, **change how you study!**

18

**Study Tips:**  
How to run good Practice

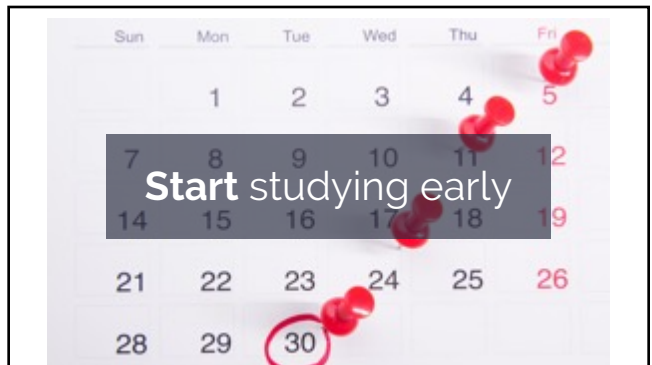
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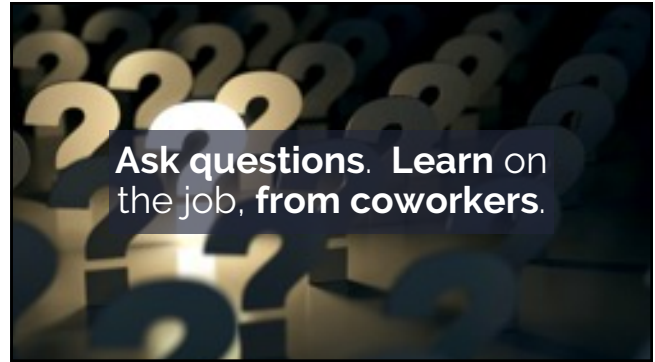
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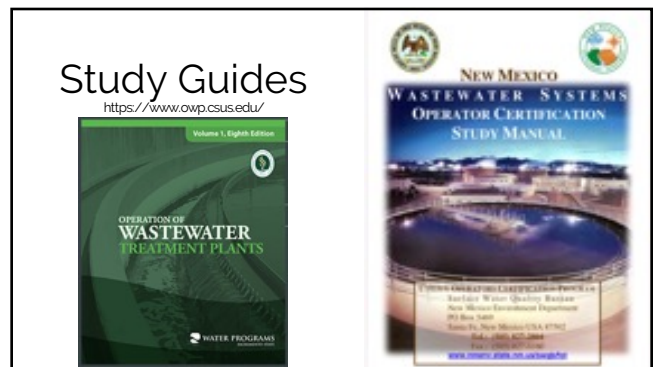
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### Study Guides: Check your state websites



- [California State University, Sacramento](#)
- [Association of Boards of Certification \(ABC\)](#)
  - [Examination Study Resources](#)
  - [Maintain Know Criteria](#) (see 2017 Edition Wastewater Treatment Plant Operator Need-to-Know Criteria for your Group level)
  - [Formula Conversion Table](#) (see PDF for 2017 Edition Serving the United States & Canada)
- [Treatment Plant Operator \(TPO\) magazine](#)
- [Water Environment Federation \(WEF\)](#)
  - [Technical Resources](#)
- [American Water Works Association \(AWWA\)](#)
  - [Main](#)
  - [WW operator certification](#)

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### Other Guides: Check your state websites

The "Red Book": <https://apps.ecology.wa.gov/publications/SummaryPages/0410020.html>

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## Need to Knows (NMED)

- **All NMED W/W Certification Levels**
  - Collection systems
  - Safety
  - Cross connections
  - De-Chlorination
  - Waste treatment ponds
  - Plant Pre-treatment
  - Sampling and reporting
  - Mechanical Systems
  - Sedimentation
  - Disinfection
  - Regulations (state and Federal)
  - General

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## Need to Knows (ITCA)

Topic	WW Level 1	WW Level 2	WW Level 3	WW Level 4
Security, Safety, & Administrative Procedures	10%	10%	10%	10%
Equipment Evaluation and Maintenance	25%	20%	20%	15%
Equipment Operation	25%	20%	20%	15%
Treatment Process Monitoring, Evaluation, & Adjustment	30%	30%	30%	35%
Laboratory Analysis	10%	15%	15%	20%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

**WPI**  
WATER PROFESSIONALS INTERNATIONAL  
The Associated Boards of Certification

Uses ABC/WPI Exams. For a complete list of each cert level: <https://www.gowpi.org/services/testing-services/>

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## Study Guides

33

**Take good notes for study and reference**

34

## Review for facts and figures

**Pipe Size**  
A sewer line should be at least large enough to allow the use of the cleaning equipment available. When sized properly, a sewer line should flow one half full during average daily flows. The space above the half full sewer line helps to maintain aerobic conditions in the wastewater and provides some room for error in determining design flow.

**Question:** How full should a sewer line flow if it is sized properly?  
**Answer:** half full during average daily flows

**Question:** What does the airspace in the sewer do?  
**Answer:** Helps maintain aerobic conditions and provides room for error in design flow.

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## TANK VOLUME $V = L \times W \times H$

**Draw sketches if they help**

36





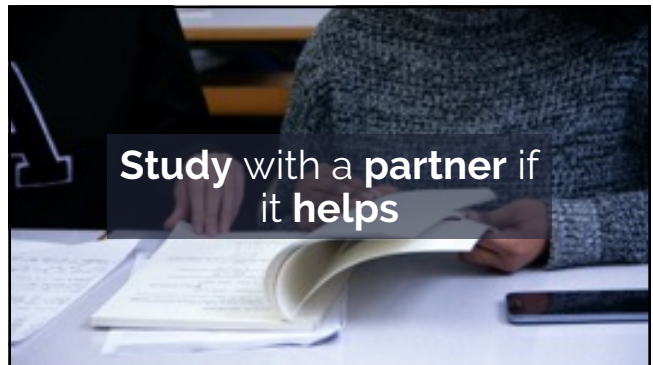
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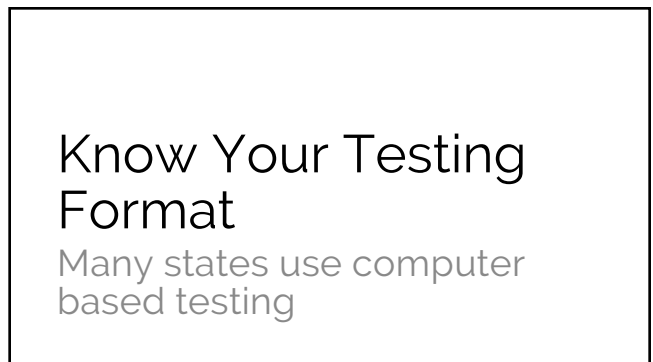
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# Reference Guides

## Know your test tools

43

### Reference Guides



NEW MEXICO ENVIRONMENT DEPARTMENT  
UTILITY OPERATOR CERTIFICATION PROGRAM

VOLUME	
<b>English</b>	<b>Metric</b>
1 acre-ft = 325,851.4 gallons	1 liter = 1,000 mL
1 acre-ft = 43,560 ft <sup>3</sup>	1 liter = 0.2642 gallons
1 cfs = 0.448 MG/D	1 m <sup>3</sup> = 2.642 gallons
1 ft <sup>3</sup> = 7.48 gallons	1 m <sup>3</sup> = 10.313 ft <sup>3</sup>
1 gallon = 231 in <sup>3</sup>	
2 gallons = 0.1337 ft <sup>3</sup>	
1 gallon = 3.785 liters	
1 gallon = 0.00001 MG	
1 MG/D = 1.55 cfs	
1 MG/D = 694 gpm	

AREA	
	<b>Metric</b>
1 acre (ac) = 43,560 ft <sup>2</sup>	1 hectare = 2.47 acres
10 <sup>3</sup> = 144 in <sup>2</sup>	
1 in <sup>2</sup> = 6.45 cm <sup>2</sup>	
1 yd <sup>2</sup> = 27 ft <sup>2</sup>	

page 1

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45

Time for test (NM example):

# 4 hrs

46

Time per question:

# 2:24

47

If you get stuck, don't kill too much time.  
Circle the question and come back to it later.

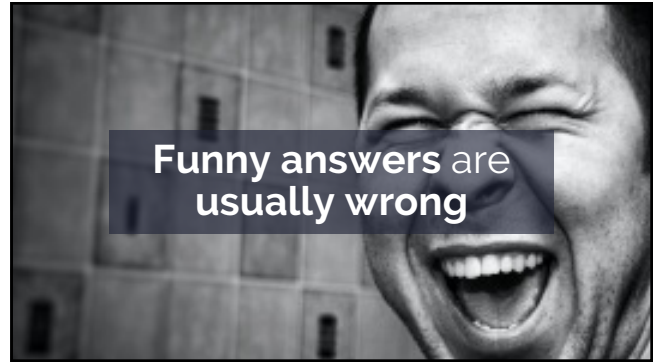
48





Don't fight the  
premise

49



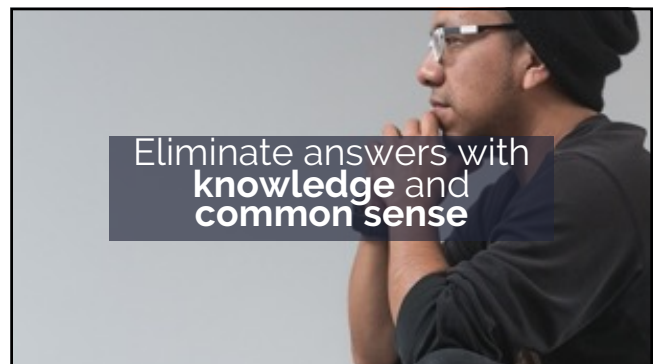
Funny answers are  
usually wrong

50

The best way for a manager to transmit information that is important to all employees is:

- ~~A. Tell your mom~~
- ~~B. Send a memorandum~~
- ✓ C. Have a face-to-face meeting
- ~~D. Put a notice on the plant's website~~

51



Eliminate answers with  
knowledge and  
common sense

52

A chlorine cylinder is thought to be leaking. If aqueous ammonia vapor is passed over the valve, the presence of a leak would cause what?

- ~~A. A loud noise~~
- ~~B. An odor of hydrogen sulfide~~
- ~~C. Red smoke~~
- ✓ D. White smoke

53

Which of the following is a disease that could be caused by exposure to wastewater?

- ~~A. HIV~~
- ~~B. Chicken Pox~~
- ✓ C. Cholera
- ~~D. Pneumonia~~

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**“Not” Questions**  
 Reframe them if it makes them easier to answer.

56

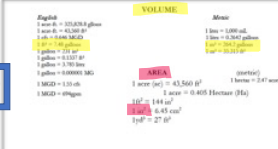
Which of the following is    a measure of volume?

- A. Cubic ft (ft<sup>3</sup>)
- B. Cubic meters (m<sup>3</sup>)
- C. Gallons (gals)
- D. Square inches (in<sup>2</sup>)

57

Which of the following is    a measure of volume?

- ✓ A. Cubic ft (ft<sup>3</sup>)
- ✓ B. Cubic meters (m<sup>3</sup>)
- ✓ C. Gallons (gals)
- ✗ D. Square inches (in<sup>2</sup>)



The chart shows various units for volume and area. Under 'VOLUME', it lists conversions for English (1 qt = 0.094635366 L, 1 gal = 3.785411784 L, 1 cu ft = 28.316846592 L, 1 cu yd = 27 cu ft) and Metric (1 dm<sup>3</sup> = 1 L, 1 m<sup>3</sup> = 1000 L, 1 cu km = 1000 cu m). Under 'AREA', it lists conversions for English (1 sq in = 6.4516 cm<sup>2</sup>, 1 sq ft = 929.0304 cm<sup>2</sup>, 1 sq yd = 9 sq ft) and Metric (1 sq m = 10,000 sq dm, 1 sq km = 1,000,000 sq m).

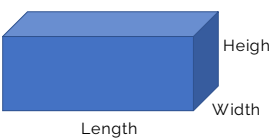
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59

Which of the following is not a measure of volume?

- ✗ A. Cubic ft (ft<sup>3</sup>)
- ✗ B. Cubic meters (m<sup>3</sup>)
- ✗ C. Gallons (gals)
- ✓ D. Square inches (in<sup>2</sup>)



Length x width x height = units cubed (for example ft<sup>3</sup>)

60

Have a **study plan**

**Manage your time**

**Read training handouts and manuals**

**Take good notes** at training and during study **to reference later**

**Draw sketches** of problems – **visuals can help**

61

**Test yourself** – or have someone test you to find your strengths and weaknesses

**Focus on the weak** points

**Memorize** what you need to

**Study** with a **partner** – if it helps

**Start** studying **early** – well **before exam date**

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## Reciprocity

If certified in one jurisdiction you may be able to get certification without testing. For example, Washington State has full reciprocity agreements with:

- Alabama,
- Alaska,
- Arizona,
- Georgia,
- Guam,
- Hawaii,
- Idaho,
- Iowa,
- Inter-Tribal Council of Arizona,
- Massachusetts, Ohio, and
- Wyoming

And conditional reciprocity with Oregon, Nevada, Colorado, Utah and New York

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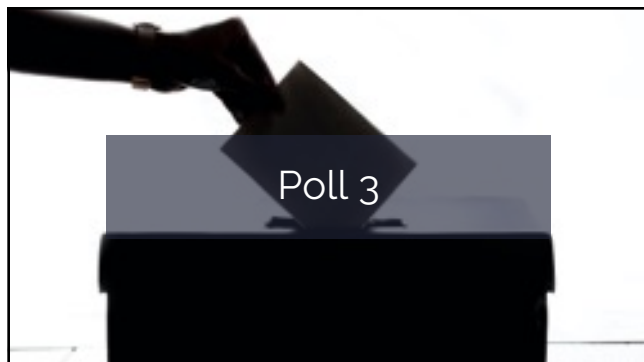
## Sample questions

Let's do a couple.

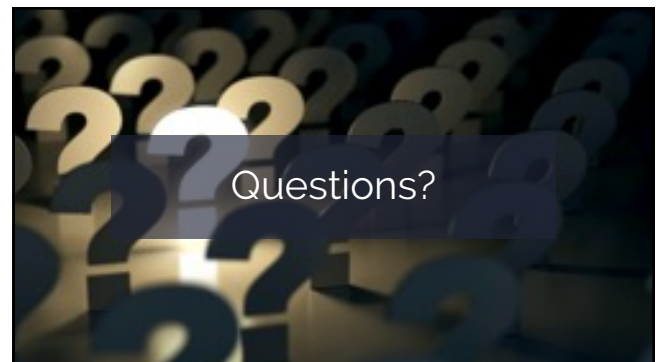
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66



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FINANCE CENTER

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