



# Medical Math



<b>Date</b>	February 7, 2025	<b>Orientation Time</b>	8:00 AM Closed to instructors
<b>Location</b>	Butler Tech 3603 Hamilton Middletown Rd Hamilton, OH 45011	<b>Contest Time</b>	Immediately following orientation (Contest closed to instructors)
<b>Scope of Contest</b>	<p>Competitors will demonstrate their ability to solve math problems that deal with the following areas:</p> <ul style="list-style-type: none"> <li>• Measurements including vital signs, temperature conversions, and height and weight</li> <li>• Metric and household measurements</li> <li>• Conversions</li> <li>• Ratio and Proportion</li> <li>• Percentage</li> <li>• Intake and Output</li> <li>• Roman numerals</li> <li>• Dosage calculations</li> <li>• The test will contain 50 problems that will evaluate competitors' problem-solving skills, as well as, their mathematical ability.</li> <li>• The competitors will have two hours (120 minutes) to complete the test. No bonus points are given for early completion of the test, and no competitor will be allowed to enter or leave testing site during testing.</li> <li>• All items listed in the appendix attached to this page are suggested references. This is just a basic reference of information that may be required for the competition. <b>They are to be used as a reference <i>prior to competition</i>, and are NOT allowed in the competition area.</b></li> <li>• If finished before 2 hr time limit, contestant may raise hand to be excused. Test and scratch paper will be collected.</li> </ul>		
<b>Testing</b>	Yes		
<b>Eligibility</b>	3 competitors per building IRN (Chapter)		
<b>Clothing</b>	Clothing Classification Guide – CLASS A, B or F		
<b>Provided by Contestant</b>	<ul style="list-style-type: none"> <li>• Professional Resume – must be typed and physically produced as a hard copy</li> <li>• Medical Form (behind ID badge) May not compete without medical form.</li> <li>• Two #2 pencils (sharpened) or mechanical pencils and erasers</li> <li>• Basic hand-held calculator (no fraction key or graphing calculators permitted)</li> <li>• No smart watches, earbuds, and/or cell phones. Contestants may not use a cell phone as a calculator!</li> </ul>		
<b>Contest Skilled Performance Standards</b>	The test questions will be taken from problems encountered in the medical field and are selected from real world applications.		

Appendix	Term	Abbreviation	Conversion Chart
	millimeter	mm	<p><b>Length</b></p> <p>1 meter = 100 centimeters = 1,000 millimeters 10 millimeters = 1 centimeter</p> <p><b>Weight</b></p> <p>1 gram = 1,000 milligrams 1 milligram = 1,000 micrograms 1 kilogram = 1,000 grams 1 grain = 60 milligrams</p> <p><b>Volume for Solids</b></p> <p>1,000 cubic millimeters = 1 cubic centimeter 1,000 cubic centimeters = 1 cubic decimeter 1,000 cubic decimeters = 1 cubic meter</p> <p><b>Volume for Fluids</b></p> <p>1 liter = 1,000 milliliters 1 milliliter = 1 cubic centimeter 10 centiliters = 1 deciliter 10 deciliters = 1 liter</p> <p><b>Weight Conversion</b></p> <p>1 kilogram = 2.2 pounds 1 pound = 16 ounces 1 ounce = 0.028 kilograms</p> <p><b>Temperature Conversion</b></p> <p><math>^{\circ}\text{C} = (^{\circ}\text{F} - 32) \div 9 \text{ or } 0.5556</math> <math>^{\circ}\text{F} = (^{\circ}\text{C}) \times 9/5 \text{ or } 1.8 + 32</math></p> <p><b>Metric/Household Equivalents</b> (Note: 1 cc = 1 mL)</p> <p>1 cc or 1 mL      15 gtts (drops) 5 mL or cc      1 tsp (teaspoon) 15 mL or cc      1 tbsp (tablespoon) 30 mL or cc      1 oz. (ounce) 240 mL or cc      1 cup (8 oz.) 500 mL or cc      1 pt (pint - 16 ounces) 1,000 mL or cc      1 qt (quart) (32 ounces) 1 meter      39.37 inches (3.281 feet) 0.914 meters      3 feet (1 yard) 0.3048 meters      12 inches (1 foot) 2.54 centimeters      1 inch</p>
	centimeter	cm	
	meter	m	
	foot/feet	ft	
	inch	in	
	gram	G	
	milligram	mg	
	microgram	mcg	
	kilogram	kg	
	pound	lb	
	ounce	oz	
	degrees Fahrenheit	$^{\circ}\text{F}$	
	degrees Celsius (Centigrade)	$^{\circ}\text{C}$	
	cubic centimeter	cc	
	milliliter	ml or mL	
	liter	L	
	unit	U	
	pint	pt	
	quart	qt	
	gallon	gal	
	tablespoon	tbsp	
	teaspoon	tsp	
	drop or drops	gtt or gtts	
	minim	minim	
	dram	dr	
	milliequivalent	mEq	
	grain	gr	
	intravenous	IV	
	tablet	tab	
	capsule	cap	
	suspension	susp	
	intake and output	I & O	