



District 8 Competition

Medical Math

Purpose:

To evaluate the students' ability to understand and solve mathematical problems commonly used in the various health care settings.

Clothing Requirements:

Official blue scrubs, white socks or skin-tone seamless hose and health professional's white leather work shoes.

Work shoes must be all-white leather (no canvas), completely enclosed (no open toe or open heel). Athletic style shoes that meet the aforementioned criteria are acceptable.

Eligibility:

Open to active SkillsUSA members enrolled in a health care sciences technology program.

Equipment and Materials:

Supplied by PTC:

- Test materials
- Scratch paper

Supplied by Contestant:

- Pencil/Pen
- Handheld calculator

Contest Specifications:

The contest includes a written medical math knowledge test. Test will not exceed 100 questions. Contestants will demonstrate their ability to solve math problems that deal with: measurements (including vital signs, temperature conversions, height/weight), metric/household measurements, conversions, ration/proportion, percentage, intake/output, roman numerals and dosage calculations.

All of the items listed on this page are a suggested reference. The test items are not limited to this material.

Medical Abbreviations:

The following list is to be used as a reference *prior to the competition*, but it *is not* allowed in the contest area. The list of terms and abbreviations is a sample taken from Diversified Health Occupations. Please use that reference for other abbreviations related to medical math that could be used in the contest.

| Term | Abbreviation |
|------------------------------|---------------------|
| millimeter | mm |
| centimeter | cm |
| meter | m |
| foot/feet | ft |
| inch | in |
| gram | G |
| milligram | mg |
| microgram | mcg |
| kilogram | kg |
| pound | lb |
| ounce | oz |
| degrees Fahrenheit | °F |
| degrees Celsius (Centigrade) | °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 |

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Conversion Chart

The following list is to be used as a reference *prior to the competition*, but it *is not* allowed in the contest area.

Length:

1 meter = 100 centimeters = 1000 millimeters
10 millimeters = 1 centimeter

Weight:

1 gram = 1000 milligrams
1 milligram = 1000 micrograms
1 kilogram = 1000 grams
1 grain = 60 milligrams

Volume for Solids:

1000 cubic millimeters = 1 cubic centimeter
1000 cubic centimeters = 1 cubic decimeter
1000 cubic decimeters = 1 cubic meter

Volume for Fluids:

1 liter = 1000 milliliters
1 milliliter = 1 cubic centimeter
10 centiliters = 1 deciliter
10 deciliters = 1 liter

Weight Conversion:

1 kilogram = 2.2 pounds
1 pound = 16 ounces
1 ounce = 0.028 kilograms

Temperature Conversion:

$^{\circ}\text{C} = (^{\circ}\text{F} - 32) \frac{5}{9}$ or 0.5556
 $^{\circ}\text{F} = (^{\circ}\text{C}) \frac{9}{5}$ or $1.8 + 32$

Metric/Household Equivalents

(note: 1cc = 1mL)
1cc or 1mL = 15 gtts (drops)
0.914 meters = 3 feet (1 yard)
0.3048 meters = 12 inches (1 foot)
2.54 centimeters = 1 inch
5 mL or cc = 1 tsp
15 mL or cc = 1 tbsp
30 mL or cc = 1 oz
240 mL or cc = 1 cup
480 mL or cc = 1 pt or 16 oz
960 mL or cc = 1 qt or 32 oz
1 meter = 39.37 inches (3.281 feet)