



MEDMATHMINDSET PROVIDER MATH ATLAS

Registered Nurse (RN) math, one domain at a time.

A focused, printable reference built from MedMathMindset's current provider-specific quantitative blueprint.

BLUEPRINT SNAPSHOT

17 domains | 100% total instructional weight

Domains are ordered from highest to lowest MedMathMindset instructional weight. These are MedMathMindset training weights, not official credentialing-body exam percentages unless an official source explicitly states otherwise.

USE IT THREE WAYS

Teach | Review | Print

Use the worked examples as a quick class reference, learner review sheet, or printable teaching aid.

WHAT THE ATLAS ADDS

Example + reasoning + check

Each domain pairs one worked example with the setup, answer, and a reasonableness check.

DOMAINS IN THIS ATLAS

1. Dimensional Analysis

10%

3. Weight-Based Dosing

10%

5. Infusion Rates

8%

7. Unit Conversions

7%

9. Intake / Output

5%

11. Titrated Infusions

5%

13. Nutrition / Metabolism Math

4%

2. Medication Dose Calculations

10%

4. IV Drip Rates

9%

6. Ratios / Proportions

7%

8. Blood Transfusion Math

5%

10. Percentages

5%

12. Lab Interpretation Math

4%

14. ABG / Gas Compensation

3%

IMPORTANT SCOPE NOTE

Educational examples only. This atlas does not replace local protocols, medication references, device instructions, scope-of-practice requirements, official credentialing test plans, or clinical judgment.



DOMAIN 1 OF 17

Dimensional Analysis

10%
MMM weight

Dimensional Analysis is included because it matches expected quantitative work for this provider level. RN scope emphasizes medication administration, parenteral therapy, safe-dose verification, blood products, intake/output, and clinical interpretation.

EXAMPLE

Available: 10 mg in 2 mL. The ordered dose is 30 mg.
How many mL will deliver the ordered dose?

SETUP / REASONING

$$? \text{ mL} = \frac{2 \text{ mL}}{10 \text{ mg}} \times \frac{30 \text{ mg}}{1} = 6 \text{ mL}$$

ANSWER**6 mL****QUICK CHECK**

Unwanted units should cancel cleanly, leaving only the requested final unit.

DOMAIN 2 OF 17

Medication Dose Calculations

10%
MMM weight

Medication Dose Calculations is included because it matches expected quantitative work for this provider level. RN scope emphasizes medication administration, parenteral therapy, safe-dose verification, blood products, intake/output, and clinical interpretation.

EXAMPLE

Available: 10 mg in 2 mL. The ordered dose is 30 mg.
How many mL will deliver the ordered dose?

SETUP / REASONING

$$30 \times 2 / 10 = 6 \text{ mL.}$$

ANSWER**6 mL****QUICK CHECK**

At a fixed concentration, a larger desired dose requires a proportionally larger volume.



DOMAIN 3 OF 17

Weight-Based Dosing

10%
MMM weight

Weight-Based Dosing is included because it matches expected quantitative work for this provider level. RN scope emphasizes medication administration, parenteral therapy, safe-dose verification, blood products, intake/output, and clinical interpretation.

EXAMPLE

A 70 kg patient is ordered 0.1 mg/kg. What dose is ordered?

SETUP / REASONING

$$70 \times 0.1 = 7 \text{ mg.}$$

ANSWER**7 mg****QUICK CHECK**

Check that the weight unit matches the dose unit before multiplying.

DOMAIN 4 OF 17

IV Drip Rates

9%
MMM weight

IV Drip Rates is included because it matches expected quantitative work for this provider level. RN scope emphasizes medication administration, parenteral therapy, safe-dose verification, blood products, intake/output, and clinical interpretation.

EXAMPLE

Infuse 500 mL over 4 hours with tubing calibrated at 15 gtt/mL. What gravity rate is needed? Round to the nearest whole drop.

SETUP / REASONING

$$500 \times 15 / 240 = 31.25, \text{ which rounds to } 31 \text{ gtt/min.}$$

ANSWER**31 gtt/min****QUICK CHECK**

Hours must be converted to minutes before using a gtt/min relationship.



DOMAIN 5 OF 17

Infusion Rates

8%

MMM weight

Infusion Rates is included because it matches expected quantitative work for this provider level. RN scope emphasizes medication administration, parenteral therapy, safe-dose verification, blood products, intake/output, and clinical interpretation.

EXAMPLE

1000 mL is to infuse over 8 hours. What pump rate is needed?

SETUP / REASONING

$1000 / 8 = 125 \text{ mL/hr.}$

ANSWER

125 mL/hr

QUICK CHECK

Volume divided by hours should produce mL/hr; confirm that the rate times time returns the original volume.

DOMAIN 6 OF 17

Ratios / Proportions

7%

MMM weight

Ratios / Proportions is included because it matches expected quantitative work for this provider level. RN scope emphasizes medication administration, parenteral therapy, safe-dose verification, blood products, intake/output, and clinical interpretation.

EXAMPLE

A 2:5 relationship is maintained. If the second quantity becomes 20, what is the first quantity?

SETUP / REASONING

$2/5 = x/20$; $x = 8$.

ANSWER

8

QUICK CHECK

Cross-products should agree when the two ratios are truly equivalent.



DOMAIN 7 OF 17

Unit Conversions

7%
MMM weight

Unit Conversions is included because it matches expected quantitative work for this provider level. RN scope emphasizes medication administration, parenteral therapy, safe-dose verification, blood products, intake/output, and clinical interpretation.

EXAMPLE

Convert 750 mg to g.

SETUP / REASONING

Use the 1000:1 metric relationship; the result is 0.75 g.

ANSWER

0.75 g

QUICK CHECK

Confirm the direction of the conversion and that the final unit is exactly the requested unit.

DOMAIN 8 OF 17

Blood Transfusion Math

5%
MMM weight

Blood Transfusion Math is included because it matches expected quantitative work for this provider level. RN scope emphasizes medication administration, parenteral therapy, safe-dose verification, blood products, intake/output, and clinical interpretation.

EXAMPLE

A 300 mL blood product is to infuse over 2 hours.
What average pump rate is needed?

SETUP / REASONING

$300 / 2 = 150 \text{ mL/hr.}$

ANSWER

150 mL/hr

QUICK CHECK

Volume / time should reproduce the prescribed total volume when multiplied back by the infusion duration.



DOMAIN 9 OF 17

Intake / Output

5%
MMM weight

Intake / Output is included because it matches expected quantitative work for this provider level. RN scope emphasizes medication administration, parenteral therapy, safe-dose verification, blood products, intake/output, and clinical interpretation.

EXAMPLE

Intake is 240 mL plus 120 mL. Output is 150 mL. What is the net fluid balance?

SETUP / REASONING

Total intake is 360 mL; subtract 150 mL to get 210 mL.

ANSWER**210 mL****QUICK CHECK**

Add all intake first, then subtract output; retain the sign because positive and negative balances mean different things.

DOMAIN 10 OF 17

Percentages

5%
MMM weight

Percentages is included because it matches expected quantitative work for this provider level. RN scope emphasizes medication administration, parenteral therapy, safe-dose verification, blood products, intake/output, and clinical interpretation.

EXAMPLE

What is 25% of 80?

SETUP / REASONING

$25\% \times 80 = 20$.

ANSWER**20****QUICK CHECK**

The result should be the stated fraction of the whole; compare its magnitude with 0% and 100%.



DOMAIN 11 OF 17

Titrated Infusions

5%
MMM weight

Titrated Infusions is included because it matches expected quantitative work for this provider level. RN scope emphasizes medication administration, parenteral therapy, safe-dose verification, blood products, intake/output, and clinical interpretation.

EXAMPLE

An infusion contains 400 mg in 250 mL. For a 80 kg patient receiving 5 mcg/kg/min, what pump rate delivers the dose? Round to the nearest tenth.

SETUP / REASONING

Concentration = 1600 mcg/mL; hourly dose = 24000 mcg/hr; rate = 15 mL/hr.

ANSWER**15 mL/hr****QUICK CHECK**

Track every unit conversion-especially mg<->mcg, minutes<->hours, and kg-before solving the pump rate.

DOMAIN 12 OF 17

Lab Interpretation Math

4%
MMM weight

Lab Interpretation Math is included because it matches expected quantitative work for this provider level. RN scope emphasizes medication administration, parenteral therapy, safe-dose verification, blood products, intake/output, and clinical interpretation.

EXAMPLE

A measured value is 6 and the comparison/reference value is 4. By what percentage is the measured value higher?

SETUP / REASONING

$(6 - 4) / 4 \times 100 = 50\%$.

ANSWER**50 %****QUICK CHECK**

Use the correct reference value in the denominator when computing percentage change.



DOMAIN 13 OF 17

Nutrition / Metabolism Math

4%
MMM weight

Nutrition / Metabolism Math is included because it matches expected quantitative work for this provider level. RN scope emphasizes medication administration, parenteral therapy, safe-dose verification, blood products, intake/output, and clinical interpretation.

EXAMPLE

A nutrient provides about 4 kcal per gram. How many kcal are provided by 25 g?

SETUP / REASONING

$25 \times 4 = 100$ kcal.

ANSWER

100 kcal

QUICK CHECK

Energy should scale directly with grams when kcal per gram is fixed.

DOMAIN 14 OF 17

ABG / Gas Compensation

3%
MMM weight

ABG / Gas Compensation is included because it matches expected quantitative work for this provider level. RN scope emphasizes medication administration, parenteral therapy, safe-dose verification, blood products, intake/output, and clinical interpretation.

EXAMPLE

Using Winter's formula, expected PaCO_2 ? $1.5 \times \text{HCO}_3 + 8$. If HCO_3 is 16 mEq/L, what is the center of the expected PaCO_2 range?

SETUP / REASONING

$1.5 \times 16 + 8 = 32$ mmHg (the usual 2 range is considered separately).

ANSWER

32 mmHg

QUICK CHECK

Use the stated compensation relationship exactly and interpret the result as an expected comparison value, not a diagnosis by itself.



DOMAIN 15 OF 17

Oxygen Delivery

3%
MMM weight

Oxygen Delivery is included because it matches expected quantitative work for this provider level. RN scope emphasizes medication administration, parenteral therapy, safe-dose verification, blood products, intake/output, and clinical interpretation.

EXAMPLE

Using the common nasal-cannula estimate of about 24% at 1 L/min plus about 4 percentage points per additional L/min, estimate FiO₂ at 3 L/min.

SETUP / REASONING

$24\% + 2 \times 4\% = 32\%$. This is an approximation, not a measured FiO₂.

ANSWER**32 %****QUICK CHECK**

Make sure the oxygen quantity and flow use compatible units before dividing.

DOMAIN 16 OF 17

Whole Number Operations

3%
MMM weight

Whole Number Operations is included because it matches expected quantitative work for this provider level. RN scope emphasizes medication administration, parenteral therapy, safe-dose verification, blood products, intake/output, and clinical interpretation.

EXAMPLE

A supply area starts with 24 counted items, adds 18, then uses 11. How many remain?

SETUP / REASONING

$24 + 18 - 11 = 31$.

ANSWER**31 items****QUICK CHECK**

Reconcile the starting quantity, additions, and use; the ending count should fit the story.



DOMAIN 17 OF 17

2%
MMM weight

Fractions / Decimals

Fractions / Decimals is included because it matches expected quantitative work for this provider level. RN scope emphasizes medication administration, parenteral therapy, safe-dose verification, blood products, intake/output, and clinical interpretation.

EXAMPLE

Write $\frac{3}{4}$ as a decimal.

SETUP / REASONING

$\frac{3}{4} = 0.75$.

ANSWER

0.75

QUICK CHECK

For a proper fraction, the decimal should fall between 0 and 1.

REFRESH PRINTED COPIES PERIODICALLY

Provider scope and MedMathMindset instructional weighting may change as the canonical provider-domain layer is updated.