HESI A2 math cheat sheet

Tutor Shelly · Nursing Exams Made Easy

1 Conversions to memorize

1 kg	**2.2 lb**
1 g	**1,000 mg**
1 mg	**1,000 mcg**
1 L	**1,000 mL**
1 tsp	**5 mL**
1 tbsp	**15 mL (3 tsp)**
1 oz	**30 mL**
1 cup	**8 oz = 240 mL**
1 inch	**2.54 cm**
°F from °C	**(°C × 9/5) + 32**
°C from °F	**(°F − 32) × 5/9**

lb → kg: divide by 2.2. 154 lb ÷ 2.2 = **70 kg**

2 Ratio and proportion (dosage)

Set up two equal ratios with the units in the same place, then cross-multiply.

Order 250 mg. On hand 125 mg in 5 mL.

$\frac{125\text{ mg}}{5\text{ mL}} = \frac{250\text{ mg}}{x\text{ mL}} \rightarrow 125x = 1{,}250 \rightarrow$ **x = 10 mL**

Shortcut: $\frac{\text{Desired}}{\text{Have}} \times \text{Quantity} = \text{amount to give}$

Watch units: convert g to mg (or mg to mcg) before you set up.

3 Fractions

- **Add / subtract:** common denominator first.
  $\frac{3}{4} + \frac{2}{3} = \frac{9}{12} + \frac{8}{12} = \frac{17}{12} = 1\frac{5}{12}$
- **Multiply:** straight across. $\frac{2}{3} \times \frac{3}{5} = \frac{6}{15} = \frac{2}{5}$
- **Divide:** flip the second, then multiply.
  $\frac{3}{4} \div \frac{1}{2} = \frac{3}{4} \times \frac{2}{1} = 1\frac{1}{2}$
- **Mixed → improper:** $2\frac{1}{3} = \frac{(2\times3)+1}{3} = \frac{7}{3}$

4 Decimals and percents

- **Percent → decimal:** move the point 2 left. 15% = 0.15
- **Decimal → percent:** move the point 2 right. 0.375 = 37.5%
- **Fraction → percent:** divide, then × 100. $\frac{3}{8}$ = 0.375 = 37.5%
- **"What is X% of Y":** decimal × Y. 15% of 80 = 0.15 × 80 = 12
- **Sale price:** find the discount, then subtract it.
  25% off $40 = $40 − $10 = $30

5 Military time

- 1:00 p.m. and later: **add 12** to the hour.
  7:45 p.m. = 1945
- Morning: keep the hour, add a leading zero.
  9:30 a.m. = 0930
- Midnight = 0000, 12:30 a.m. = 0030, noon = 1200
- Back to regular: over 12, subtract 12.
  2215 = 10:15 p.m.
- Durations: subtract hours and minutes separately.
  0700 → 1930 = 12 h 30 min

6 Algebra and Roman numerals

- Undo + and − first, then × and ÷.
  $3x + 7 = 25 \rightarrow 3x = 18 \rightarrow$ **x = 6**
- Check by plugging your answer back in: 3(6) + 7 = 25 ✓

I = 1 V = 5 X = 10 L = 50 C = 100 D = 500 M = 1,000

Smaller before larger means **subtract**:
IV = 4, IX = 9, XL = 40, XC = 90. XLIX = 40 + 9 = 49

How to use this sheet

Take a timed practice set first and circle the types you miss. Spend most of your study time on those, 20–30 minutes a day. Rework every missed question without looking, then check against the rule above. Check which HESI A2 sections your program requires before you start.

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Free lesson: "HESI A2 Math Review: The 6 Question Types" on YouTube · Practice bank with a rationale for every answer

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