

Drug Dosage: Conversions

Most, if not all, nursing drug dosage problems involve one or more unit conversions to solve and find the final solution. Having a solid understanding of unit conversion problems is foundational to nursing drug dosage and will allow for success in solving all other problems. For a list of common conversions and formulas, refer to the [Nursing Conversions and Formulas](#) handout. Below are a variety of practice problems that have been provided to allow for skill development in this area.

Table of Contents

[Metric Conversions](#): pg. 1

[General Conversions](#): pg. 2

[Temperature Conversions](#): pg. 3

[Military Time Conversions](#): pg. 3

[Daily Intake](#): pg. 4

Metric Conversions

- | | |
|-------------------------|-------------------------|
| 1. 300 mg = _____ g | 19. 0.005 L = _____ mL |
| 2. 238 g = _____ mcg | 20. 1.5 L = _____ cc |
| 3. 28 mL = _____ L | 21. 2 mL = _____ cc |
| 4. 42 g = _____ kg | 22. 250 cc = _____ L |
| 5. 0.024 L = _____ mL | 23. 2 kg = _____ g |
| 6. 635 mcg = _____ mg | 24. 56.08 cc = _____ mL |
| 7. 50 mL = _____ L | 25. 79,200 mL = _____ L |
| 8. 16 g = _____ mg | 26. 1 L = _____ mL |
| 9. 100 mg = _____ g | 27. 1 g = _____ mg |
| 10. 0.015 g = _____ mg | 28. 1 mL = _____ L |
| 11. 8 mg = _____ g | 29. 1.05 g = _____ kg |
| 12. 10 mg = _____ g | 30. 18 mcg = _____ mg |
| 13. 60 mg = _____ g | 31. 0.4 mg = _____ mcg |
| 14. 7.16 kg = _____ g | 32. 25 g = _____ kg |
| 15. 0.2 mg = _____ g | 33. 30 mg = _____ mcg |
| 16. 1.2 g = _____ mg | 34. 5 mL = _____ L |
| 17. 0.0025 kg = _____ g | 35. 450 cc = _____ L |
| 18. 0.065 g = _____ mg | 36. 23 mcg = _____ mg |

37. 625 mcg = _____ mg

38. 16 g = _____ mg

39. 1.5 g = _____ mg

40. 475 mL = _____ L

41. 2 kL = _____ L

42. 0.75 L = _____ mL

43. 8.65 mL = _____ L

44. 7.56 g = _____ mg

General Conversions

Round all answers to the nearest tenth as applicable.

1. 84 lb = _____ kg

2. 2.5 mL = _____ t

3. 13 t = _____ cc

4. 20 mL = _____ t

5. 4 T = _____ cc

6. 9 kg = _____ lb

7. 55 kg = _____ lb

8. 3 t = _____ mL

9. 99 lb = _____ kg

10. 40 kg = _____ lb

11. 4 tsp = _____ mL

12. 110 lb = _____ kg

13. 3.5 kg = _____ lb

14. 63 lb = _____ kg

15. 120 mL = _____ oz

16. 6 lb 8oz = _____ kg

17. 9 lb 4oz = _____ kg

18. 5 lb 10 oz = _____ oz

19. 65.5 kg = _____ lb oz

20. 42 kg = _____ lb

21. 4 in = _____ cm

22. 6.5 in = _____ cm

23. 16 cm = _____ in

24. 24 cm = _____ in

25. 4 T = _____ oz

26. 45 oz = _____ T

27. 3oz = _____ cc

28. 4 T = _____ t

29. 250 mL = _____ tbsp

30. 4 kg = _____ lb oz

31. 325 cc = _____ tsp

32. 21 tsp = _____ tbsp

33. 54 lb = _____ kg

34. 126 mL = _____ T

35. 3 T = _____ mL

36. 12 oz = _____ mL

37. 30 kg = _____ lb

38. 29 cm = _____ in

39. 3 tbsp = _____ cc

40. 32 cm = _____ in

Temperature Conversion Calculations

Round to the nearest tenth for all temperature calculations as applicable.

1. 98 °F= _____ °C

2. 46 °C= _____ °F

3. -40 °C= _____ °F

4. 32 °C= _____ °F

5. 102 °F= _____ °C

6. 98.6 °F= _____ °C

7. 87.6 °F= _____ °C

8. 50 °C= _____ °F

9. 42.6 °C= _____ °F

10. 97.2 °F = _____ °C

11. A nurse needs to report a patient's temperature in Celsius into the EMR. The thermometer reads 98.7 °F. What would the nurse record in Celsius?
12. A patient presents febrile with a temperature of 102 °F. The doctor requests that the temperature be recorded in the EMR in Celsius. What would the nurse record in Celsius for this patient's temperature?
13. A travel nurse is working outside of the United States and receives a temperature recording from the monitor as 36 °C. What is this temperature in degrees Fahrenheit?
14. A 12-month-old baby presents to the office. The parents state that the baby has a temperature of 40 °C. If a temperature above 101 °F is considered febrile at this facility, would the nurse record that the baby has a fever? What is the baby's temperature in Fahrenheit?
15. A patient states that they have had a fever for the past twelve hours that is not being relieved by medication taken at home. The patient reports that their highest temperature was 39.8 °C. What would the nurse record as the highest patient reported temperature in Fahrenheit?

Military Time Calculations

Convert to the alternative time form: Military → 12-hour time; 12-hour time → Military.

- | | |
|-----------------------|-----------------------|
| 1. 1300 → _____ | 6. 12:30 p.m. → _____ |
| 2. 1425 → _____ | 7. 0815 → _____ |
| 3. 6:50 p.m. → _____ | 8. 0120 → _____ |
| 4. 1224 → _____ | 9. 3:15 a.m. → _____ |
| 5. 12:00 a.m. → _____ | 10. 9:45 a.m. → _____ |

11. A patient receives 0.5 mg of Morphine at 1800. The order states that the patient can receive 0.5 mg of Morphine q.6 hours prn. When can the patient take another dose of Morphine? Record the answer in military time and in standard 12-hour time.
12. A patient's order reads 600 mg Acetaminophen q.4 hours prn for headache. The patient received the last dose at 1400. It is now 1900 and the patient is complaining of a headache, rating it as 6/10 pain. Can the patient have another dose of Acetaminophen?

13. The nurse during handoff tells you that your patient received her last dose of Zofran at 1300. When is the next possible time that the patient can receive the next dose if the medication is ordered q.4 hours prn for nausea? Choose all that apply.
- | | | |
|---------|---------|---------|
| a. 1500 | c. 1730 | e. 1600 |
| b. 1700 | d. 1800 | f. 1930 |
14. A patient stated that she had a headache and rated the pain as 8/10 at 1930. The nurse had given a prn medication ordered q.4 hours at 1620. Can the patient receive another dose of the medication now? When is the next time the patient can receive the medication? Record the answer in military time and in standard 12-hour time.
15. A patient's drainage system was emptied at 1300 and recorded. The nurse comes in again two hours later to re-evaluate the drainage and finds it full. When reporting to the doctor, the time of reevaluation is requested. What time would the nurse record in military time format and in standard 12- hour time format for when she re-evaluated the drainage?

Daily Intake Calculations

1. A nurse needs to record a patient's total oral fluid intake for the day in mL. The patient had the following: one cup of ice chips, 5 ounces of Jello, one cup of apple juice, 60 mL of applesauce, 8 tablespoons of pudding, and 280 mL of water. What would the nurse record in the EMR as total intake in mL?
2. A nurse needs to record a patient's intake. During the day, the patient had one eight-ounce cup of pudding, a 6 oz cup of apple juice, three 8 oz cups of water, a 240 oz of diet cola, 36 mL of applesauce with her medication, and four 6 oz glasses of cranberry juice. What was the patient's total daily intake in mL?
3. A patient presents for their pre-surgery consultation and brings a copy of the previous day's meals so that the nurse can calculate the last day's total liquid intake. The following has been recorded: What would the nurse record as total liquid intake in mL?
 Breakfast: one bowl (8 oz) of oatmeal with a 6 oz glass of milk
 Snack: 4 saltine crackers and 240 mL of cherry cola
 Lunch: 2 cups of soup and two (8oz) glasses of water
 Day time: 3 (8 oz) glasses of water and a 6 oz popsicle
 Dinner: A 6 oz piece of salmon with rice, a 16 oz glass of lemonade, and 2 cups of ice cream.

4. A patient had an eight-ounce glass of water, 300 mL of orange juice, half an eight-ounce cup of applesauce, a grilled cheese sandwich, and twenty one-ounce crackers for lunch. What would the nurse record in mL as the total liquid intake for the meal?
5. A patient has orders for strict I&O monitoring due to the admitting diagnosis of worsening CHF. During the report, the leaving nurse reports all the patient's intake in ounces, but the MAR requires documentation in mL. If the nurse is to record each item individually, what would the nurse record in mL?
- One eight-ounce glass of milk
 - Three tablespoons of applesauce
 - A ten-ounce bowl of oatmeal
 - Twelve teaspoons of pudding

Answers

Metric Conversions

1. 300 mg = 0.3 g
2. 238 g = 238,000,000 mcg
3. 28 mL = 0.028 L
4. 42 g = 0.042 kg
5. 0.024 L = 24 mL
6. 635 mcg = 0.635 mg
7. 50 mL = 0.05 L
8. 16 g = 16,000 mg
9. 100 mg = 0.1 g
10. 0.015 g = 15 mg
11. 8 mg = 0.008 g
12. 10 mg = 0.01 g
13. 60 mg = 0.06 g
14. 7.16 kg = 7,160 g
15. 0.2 mg = 0.0002 g
16. 1.2 g = 1,200 mg
17. 0.0025 kg = 2.5 g
18. 0.065 g = 65 mg
19. 0.005 L = 5 mL
20. 1.5 L = 1,500 cc
21. 2 mL = 2 cc
22. 250 cc = 0.25 L
23. 2 kg = 2,000 g
24. 56.08 cc = 56.08 mL
25. 79,200 mL = 79.2 L
26. 1 L = 1,000 mL
27. 1 g = 1,000 mg
28. 1 mL = 0.001 L
29. 1.05 g = 0.00105 kg
30. 18 mcg = 0.018 mg
31. 0.4 mg = 400 mcg
32. 25 g = 0.025 kg
33. 30 mg = 30,000 mcg
34. 5 mL = 0.005 L
35. 450 cc = 0.45 L
36. 23 mcg = 0.023 mg
37. 625 mcg = 0.625 mg
38. 16 g = 16,000 mg
39. 1.5 g = 1,500 mg
40. 475 mL = 0.475 L
41. 2 kL = 2,000 L
42. 0.75 L = 750 mL
43. 8.65 mL = 0.00865 L
44. 7.56 g = 7,560 mg

General Conversions

1. 84 lb = 38.2 kg
2. 2.5 mL = 0.5 t
3. 13 t = 65 cc
4. 20 mL = 4 t
5. 4 T = 60 cc
6. 9 kg = 19.8 lb
7. 55 kg = 121 lb
8. 3 t = 15 mL
9. 99 lb = 45 kg
10. 40 kg = 88 lb
11. 4 tsp = 20 mL
12. 110 lb = 50 kg
13. 3.5 kg = 7.7 lb
14. 63 lb = 28.6 kg
15. 120 mL = 4 oz
16. 6 lb 8 oz = 3 kg
17. 9 lb 4 oz = 4.2 kg
18. 5lb 10 oz = 90 oz
19. 65.5 kg = 144 lb 1.6 oz
20. 42 kg = 92.4 lb

21. 4 in = 10.2 cm
22. 6.5 in = 16.5 cm
23. 16 cm = 6.3 in
24. 24 cm = 9.4 in
25. 4 T = 2 oz
26. 45 oz = 90 T
27. 3oz = 90 cc
28. 4 T = 12 t
29. 250 mL = 16.7 tbsp
30. 4 kg = 8 lb 12.8 oz

31. 325 cc = 65 tsp
32. 21 tsp = 7 tbsp
33. 54 lb = 24.5 kg
34. 126 mL = 8.4 T
35. 3 T = 45 mL
36. 12 oz = 360 mL
37. 30 kg = 66 lb
38. 29 cm = 11.4 in
39. 3 tbsp = 45 cc
40. 32 cm = 12.6 in

Temperature Conversion Calculations

1. 98 °F = 36.7 °C
2. 46 °C = 114.8 °F
3. -40 °C = -40 °F
4. 32 °C = 89.6 °F
5. 102 °F = 38.9 °C
6. 98.6 °F = 37 °C
7. 87.6 °F = 30.9 °C
8. 50 °C = 122 °F

9. 42.6 °C = 108.7 °F
10. 97.2 °F = 36.2 °C
11. 37.1 °C
12. 38.9 °C
13. 96.8 °F
14. Yes, the baby would be considered febrile; 104 °F
15. 103.6 °F

Military Time Calculations

1. 1:00 p.m.
2. 2:25 p.m.
3. 1850
4. 12:24 p.m.
5. 2400 or 0000
6. 1230
7. 8:15 a.m.
8. 1:20 a.m.

9. 0315
10. 0945
11. 2400 / 0000 / 12:00 a.m. / midnight
12. Yes, the patient can.
13. b. 1700, c. 1730, d. 1800, f. 1930
14. No; 2020 / 8:20 p.m. is next dose time
15. 1500 / 3:00 p.m.

Daily Intake Calculations

1. 970 mL total intake
2. 9,096 mL total intake
3. 3,480 mL total intake

4. 660 mL of total intake
5. 645 mL of total intake