Instructions:
- Review the topics listed above and create a study summary sheet.
- Use the following questions as a study tool to test your knowledge.
- Do not use a calculator. Time yourself to see how long it takes.
- Answers are provided on the last page.

Questions:

1. Which of the following fractions are equivalent to $\frac{2}{5}$?

   \[
   \frac{10}{15}, \frac{4}{10}, \frac{3}{6}, \frac{40}{100}, \frac{26}{65}, \frac{30}{75}, \frac{230}{600}, \frac{5}{2}
   \]

2. Solve.
   a) $\frac{4}{5} + \frac{7}{12} =$
   b) $3 \frac{9}{10} - \frac{11}{15} =$
   c) $\frac{125}{270} \times \frac{20}{25} =$
   d) $250 \div \frac{3}{2} =$
   e) $5 \frac{37}{40} + 19 \frac{11}{20} =$
   f) $60 \frac{2}{15} - \frac{7}{18} =$
   g) $\frac{400}{150} \times 3 =$
   h) $3 \frac{2}{11} \div \frac{40}{121} =$

3. One dose of cough syrup for a child weighing 50 lbs is approximately 25 mL. How many 25 mL doses does a 500 mL bottle of syrup contain?

4. The patient has 350 mL of IV fluid left to be administered. If it’s going to take $2\frac{4}{5}$ hours to infuse this amount, what is the flow rate in mL per hour?

5. Solve.
   a) $123.45 \times 12 =$
   b) $600.78 + 29.236 =$
   c) $120 \div 0.9902 =$
   d) $893.882 \div 22 =$
   
6. Round the following numbers to the values indicated in brackets.
   a) 156.023 (to the nearest ten)
   b) 26.895 (to the nearest hundredth)
   c) 6.001 (to the nearest tenth)
   d) 1956.1 (to the nearest hundred)
   e) 2010.69 (to the nearest one
7. Complete the following table:

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Fraction</th>
<th>Decimal</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>5:6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( \frac{7}{8} )</td>
<td></td>
<td>0.625</td>
<td>40.4%</td>
</tr>
<tr>
<td>1.15</td>
<td></td>
<td></td>
<td>6/7 %</td>
</tr>
<tr>
<td>13:8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. Overtime pay is normally paid in a ratio of 1.5 : 1. If you worked 4 hours overtime and your hourly wage is $20 per hour, how much overtime pay should you expect to get (before taxes and deductions)?

9. Weight is an important factor to measure during pregnancy. A patient has the following record of weight gain in the last 5 weeks of pregnancy:
   - Week 35 – 152.8 lb
   - Week 37 – 155.2 lb
   - Week 38 – 156.4 lb
   - Week 39 – 158 lb
   - Week 40 – 160.1 lb

   What is the total weight gain in pounds from week 35 to week 40? What is the percentage weight gain?

10. A patient’s total intake of fluids for the day is 1255 mL. The patient’s total output is 575 mL. What is the net amount of fluid I&O?

11. Solve.
   a) What is 35% of $200?
   b) 24 is 12% of what number?
   c) What percent of 500 is 750?
   d) What is your percent grade on a quiz if you get 7 out of 12?
12. You get a letter from your employer indicating that all practical nurses will be receiving a 5% increase in salary effective January 1. If your hourly wage was $17 per hour, what will be your new wage after the increase?

13. Solve the following proportions:
   a) $34 : 20 :: 85 : x$
   b) $x : 19.5 :: 76 : 20.9$
   c) $28 : 100% :: x : 4/5$
   d) For every 10 kg, give 20 mL medication. How much medication should be given for a patient weighing 50 kg?
   e) Every 2.5 mL of medication contains 0.15 g of the active compound. How many grams of the active compound will be present in 10 mL of medication?
   f) The flow rate is 125 mL every one hour. How many milliliters will be infused in 3.5 hours?
   g) The ordered amount of drug is 500 mg. You have 125 mg capsules available on hand. How many capsules are needed for the order?

14. Perform the following conversions (round to the nearest tenth, if necessary):
   a) $600 \text{ mL to L}$
   b) $0.3 \text{ mg to mcg}$
   c) $2.3 \text{ L to mL}$
   d) $12.8 \text{ m to cm}$
   e) $2 \text{ cups to mL}$
   f) $16 \text{ oz to mL}$
   g) $15 \text{ L to oz}$
   h) $3 \text{ hours to minutes}$
   i) $1500\text{h to standard time}$
   j) $37.2^\circ\text{C to } ^\circ\text{F}$
   k) $120 \text{ lb to kg}$
   l) $165 \text{ cm to m}$
   m) $15 \text{ mL to tsp}$
   n) $98.1^\circ\text{F to } ^\circ\text{C}$
   o) $12 \text{ am to military time}$
   p) $2 \text{ m to inches}$
   q) $87.2 \text{ kg to lb}$

Math Learning Centre
Centennial College of Applied Arts and Technology
library.centennialcollege.ca/learning-centre
15. A patient receives 6 oz of Pulmocare followed by 3 oz of water every 6 hours on an 8-2-8-2 schedule. The patient also consumes 1 oz of ice pop at both 12 pm and 4 pm. The patient’s Foley catheter is emptied of 500 mL of urine at 1700h. Calculate and record the I&O during your 6 am to 6 pm shift.

16. A patient is NPO and receiving D5 ½ NS with 20 mEq KCl at 150 mL/h. The patient’s urine output is 250 mL, 270 mL and 125 mL during your 6 pm – 6 am shift. What is the patient’s I&O during your shift?

17. A patient is on a strict diet and as a result has lost 5.6 pounds of weight in the last 3 weeks. At this rate, how many kilograms do you expect the patient to lose in 8 weeks?

18. What do the following medical abbreviations mean?
   a) NPO  
   b) q6h  
   c) bid  
   d) gtt  
   e) qid  
   f) q8h

19. Order: Phenergen 25 mg
      Have: Phenergen 50 mg/mL
      Give: __________________

20. Order: Heparin 8000 units
      Have: 10 000 units per milliliter
      Give: __________________

21. Order: 3000 mg daily
      Have: 1 g tabs
      Give: ________________

22. Atenolol 0.05 g capsules are supplied. The doctor orders 200 mg. How many capsules should be given to the patient?

23. The order says “erythromycin suspension 500 mg PO q6h”. The supply on hand is erythromycin 250 mg/5 mL. How many milliliters of medication should be given to the patient?

24. The doctor orders “valporic acid 0.05 g PO TID.” The bottle of valporic acid on hand says 25 mg/5mL. How milliliters should be given per dose and in one day?

Math Learning Centre
Centennial College of Applied Arts and Technology
library.centennialcollege.ca/learning-centre
25. The physician ordered “penicillin V potassium 600 000 units PO QID”. You have penicillin V potassium 200 000 units/5 mL. How many milliliters should be given to the patient per dose and in one day?

26. What should the drip rate (gtt/min) be for the following order: “50 mL antibiotic D₅W in 15 min”? You will use macrodrip tubing with a drop factor of 20 gtt/mL.

27. Infuse D₅W IV at 200 mL/h for 6 hours. What is the total volume to be infused in liters?

28. Infuse 1 L Normal Saline IV over 4 hours. The drop factor is 15 gtt/mL. What is the flow rate (mL/h)?

29. A patient has an order for vasopressor at 10 mcg/min. The concentration is vasopressor 4 mg in 500 mL D₅W. How many milliliters per hour should the IV pump be set for?

30. The physician orders morphine sulfate 1.2 mg IV q4h for pain. You have morphine sulfate available on hand as 0.5 mg/mL. The child weighs 22 lb. The recommended single dose is 0.1 to 0.2 mg/kg q4h.
   a) What is the safe single-dose range for this child?
   b) Is the ordered amount within the safe range?
   c) How much medication will you draw up and add to the IV at one time?

31. The physician orders 200 mL D₅LR over 3 hours for a child weighing 33 lb. At what flow rate (mL/h) should the IV pump be set?

32. A neonate is admitted in your ward. The neonate has a body temperature of 38.0°C. Tylenol infant drops are available as 50 mg/0.5 mL. The physician order says “Tylenol elixir 40 mg p.o. q6h prn for fever.” How many milliliters are needed to deliver the ordered dose?

33. Ampicillin is available as 500-mg powder to be reconstituted with 2 mL of sterile water for a final concentration of 250 mg/mL. If the physician orders 160 mg of ampicillin IV to be infused over 20 minutes, how many milliliters will you draw up into the syringe?

34. Your patient receives cefuroxime 1 g in 100 mL NS IVPB 30 minutes q8h. If the drop factor is 60 gtt/mL, what is the drip rate (gtt/mL)?
Answers:

1. $\frac{4}{10}$, $\frac{40}{100}$, $\frac{26}{65}$, $\frac{30}{75}$

2. a) $1\frac{23}{60}$
   
   b) $3\frac{1}{6}$
   
   c) $\frac{10}{27}$
   
   d) $166\frac{2}{3}$
   
   e) $25\frac{19}{40}$
   
   f) $59\frac{67}{90}$
   
   g) 8
   
   h) $9\frac{5}{8}$

3. 20 doses

4. 125 mL/h

5. a) 1481.4
   
   b) 630.016
   
   c) 119.0098
   
   d) 40.631

6. a) 160
   
   b) 26.90
   
   c) 6.0
   
   d) 2000
   
   e) 2011

7.

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Fraction</th>
<th>Decimal</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>5:6</td>
<td>5/6</td>
<td>0.833</td>
<td>83.3%</td>
</tr>
<tr>
<td>23:8</td>
<td>$\frac{7}{8}$</td>
<td>2.875</td>
<td>287.5%</td>
</tr>
<tr>
<td>5:8</td>
<td>5/8</td>
<td>0.625</td>
<td>62.5%</td>
</tr>
<tr>
<td>101:250</td>
<td>$\frac{101}{250}$</td>
<td>0.404</td>
<td>40.4%</td>
</tr>
<tr>
<td>23:20</td>
<td>$1\frac{3}{20}$</td>
<td>1.15</td>
<td>115%</td>
</tr>
<tr>
<td>3:350</td>
<td>$\frac{3}{350}$</td>
<td>0.00857 or 0.009</td>
<td>6/7 %</td>
</tr>
<tr>
<td>13:8</td>
<td>$\frac{5}{8}$</td>
<td>1.625</td>
<td>162.5%</td>
</tr>
</tbody>
</table>

8. $120

Math Learning Centre
Centennial College of Applied Arts and Technology
library.centennialcollege.ca/learning-centre
9. 7.3 lb and 4.8%
10. 680 mL
11. a) 70  
    b) 200  
    c) 150%  
    d) 58.3%
12. $25.97
13. a) 50  
    b) 70.9  
    c) \(\frac{28}{125}\)  
    d) 100 mL
14. a) 0.6 L  
    b) 300 mcg  
    c) 2300 mL  
    d) 1280 cm  
    e) 480 mL  
    f) 480 mL  
    g) 500 oz  
    h) 180 min.  
    i) 3:00 PM
    j) 99°F  
    k) 54.5g  
    l) 1.65 m  
    n) 3 tsp  
    o) 36.7°C  
    p) 0000h  
    q) 80 inches  
    r) 191.8 lb
15. Intake is 600 mL, output is 500 mL.
16. Intake is 1800 mL, output is 645 mL.
17. 6.8 kg
18. a) nothing by mouth  
    b) Every 6 hours  
    c) Twice a day  
    d) Drops  
    e) Four times a day  
    f) Every 8 hours
19. 0.5 mL
20. 0.8 mL
21. 3 tabs
22. 4 caps

Math Learning Centre
Centennial College of Applied Arts and Technology
library.centennialcollege.ca/learning-centre
23. 10 mL
24. 10 mL per dose, 30 mL in one day.
25. 15 mL per dose, 60 mL in one day.
26. 67 gtt/min
27. 1.2 L
28. 250 mL/h
29. 75 mL/h
30. a) 1-2 mg
   b) Yes, the ordered amount is within the safe range.
   c) 2.4 mL
31. 67 mL/h
32. 0.4 mL
33. 0.64 mL will be drawn into the syringe.
34. 200 gtt/min

*Best of luck on the final test! You can do it!*