Nursing Maths Practice questions for Test 1

Calculators may not be used.

Show all working for each question as partial marks **will** be awarded for working calculations where there was a slight error for example in basic times tables facts, but the calculation process was correct.

Section A. Short Answer Questions

1) Double 236 =

2) Half of 186 =

3) 600 × 700 =

4) 30,000 ÷ 50 =

5) 0.7 × 0.4 =

6) 15 ÷ 0.5 =

7) 6^2 =

8) 24 + 6 ÷ 3 =

9) -1 − 5 =

10) 2 × (3+4^2) =

Section B. Whole Numbers

Show ALL working.

1. An average heart beats at around 75 beats per minute. Show a method for calculating the total number of heart beats beaten by an average heart in 5 minutes.

2. You have drunk a cup of brewed coffee containing 133mg caffeine and a glass of pepsi containing 38mg caffeine. Show a method for calculating the **total** amount of caffeine you have consumed.

3. It is recommended that you consume 1200mg of calcium a day.
   You have had:
   200ml milk   (mL = 1mg)   280mg calcium
   50mg cheese   370mg calcium

   a) How much calcium have you consumed?

   b) How much do you still need to consume to reach the recommended daily allowance?

4. Starship hospital has 9 wards with a **total** of 216 beds. How many beds are there on average **in each** ward?

5. A patient needs 12ml of medication 4 times per day for 35 days.

   a) Round these three numbers to **1 significant figure**:

          12:                    4:   35:

   b) Use these rounded numbers to ESTIMATE how much medication she will need:

c) Reread the information for question 5, and calculate exactly how much medication needs to be prescribed. (Check this corresponds with your estimate).

6. A pharmacist had 2715ml of paracetamol. She poured it equally into 3 containers. How much was there in each container?

7. Dunedin has a population of 111,185. If there are 47 doctors in Dunedin, ESTIMATE approximately how many patients each doctor works with by rounding these numbers and dividing. Round to numbers that make the division easy. DO NOT CALCULATE THE EXACT ANSWER.   (2 marks)

Section C. Decimals
   Show ALL working.

1. A child weighs 35kg. A year ago he weighed 31.7kg. How much heavier is the child than he was a year ago?

2. The recommended daily allowance of protein is 0.8 grams per kilogram weight.

   a) Calculate the recommended allowance of protein for someone weighing 75kg.
                     (i.e. multiply 0.8 by 75)

   b) Someone weighing 75kg has consumed the following:

          100g terakihi fish containing 11.6g protein
          100g dairy milk chocolate containing 8g protein

   Calculate how much of their recommended daily allowance they have consumed.

   c) Using your answers to 2a) and 2b) calculate how much protein they still need to
   consume to reach the recommended daily allowance for their weight.

3. One medium avocado contains 78.4 mg of magnesium. If you eat 12 medium
avocadoes in one month   (3 marks)

   a) Round these two numbers to **1 significant figure**:

       78.4 :   12 :

   b) Use your rounded numbers to ESTIMATE how much magnesium you have gained
       from these avocadoes.

   c) Calculate the actual amount of magnesium you have gained. (Check your answer
       corresponds with your estimate).

4. Ten roasted chestnuts contain around 4.3g of fibre. About how much fibre is there in one roasted chestnut?

5. A hospital ordered 8 new wheelchairs. The total cost came to $2565.

a) ESTIMATE the cost of one wheelchair by rounding these numbers and dividing. Round to numbers that make the division easy.

b) Calculate the cost of one wheelchair. Do the division to three decimal places and then round to the nearest cent. (Check that your answer corresponds with your estimate).

6)   You have 1.14L of detergent. You know you need 0.055L per day. ESTIMATE how many days this will last by rounding these numbers and dividing. Round to numbers that make the division easy. DO NOT CALCULATE the exact answer.

7) A district nurse can claim $0.72 per kilometre when she travels in her own car. In a month she travels 375km.

a)   Round these numbers to **1 significant figure**:

        0.72   :   375 :

b)   Use these rounded numbers to ESTIMATE how much she will receive. DO NOT CALCULATE the exact answer.   (2 marks)

Section D. Rounding, Integers

1) Round the following to the amount shown in the brackets.

(a) 462,362 (tens of thousands)

(d) 119.87 (whole number)

(b) 76,389 (hundreds)

(e) 0.8923 (2 decimal places)

(c) 2645 (1 significant figure)

(f) 0.0089 (1 significant figure)

2) Normal body temperature is 37°C. If you are in the Antarctic and the temperature is -25°C, how many degrees difference is there between the temperature inside your body and the temperature outside? (1 mark)

3) Plasma from blood donations can be frozen and stored at -30°C. To thaw it, this temperature has to be increased by 34°. What temperature is this? (1 mark)

Section E Heart Rate

1. a) Your <u>maximum safe heart rate</u> **(M)** in beats per minute is found by subtracting your age from 220. Ngahuia's age is 36.5 years old.
   (1 mark)
   Calculate the maximum safe heart rate, **M**, for Tilisa.

M =

b) Once you know your maximum safe heart rate you can calculate your appropriate <u>target heart rate zone</u> while doing moderate exercise.

With moderate exercise a person's <u>target heart rate zone</u> is between 0.5 x **M** (lower limit - in beats per minute) and 0.7 x **M** (upper limit - in beats per minute).

Using your answer in part a) Do the necessary calculations to find Tilisa's <u>target heart rate zone</u> after exercise.
Show all your working.

   Lower limit: Upper limit

ANSWERS

Section A. Mental calculations

1) 472

2) 93

3) 420,000

4) 600

5) 0.28

6) 150 ÷ 5 = 30

7) 6 × 6 = 36

8) 24 + 2 = 26

9) -6

10) 2 × (3 + 16) = 2 × 19 = 38

Section B. Whole Numbers

1) 75 × 5 = (80 × 5) – (5 × 5) = 400 – 25 = 375 heart beats

   Or   (70 × 5) + (5 × 5) = 350 + 25 = 375 heart beats

   Or   75 × 10 ÷ 2 = 750 ÷ 2 = 375 heart beats

   Or ^{2}75

      ×   5

      375 heart beats

2) 133 + 38 = 133 + 40 – 2 = 173 – 2 = 171mg

   Or   100 + (30 + 30) + (3 + 8) = 100 + 60 + 11= 171mg

   Or 100 + (35 + 35) – 2 + 3 = 100 + 70 + 1 = 171mg

   Or   1^{1}33

      + 38

      171mg

3) a) 280 + 370 = 650mg

   b) 1200 – 650 = 550mg

4) 216 ÷ 9 = 24 beds

5) a) i) 10 ; 4 ; 40 ii) 10 × 4 × 40 = 40 × 40 = 1600ml

   b) 12 × 4 × 35 = 48 × 35 = 1680ml

6) 2715 ÷ 3 = 905ml

7) 100,000 ÷ 50 = 2,000 patients

Section C. Decimals

1) 35 – 31.7 = 3.3kg
2) a) 0.8 × 75 = 60g
    b) 11.6 + 8 = 19.6g;
    c) 60 – 19.6 = 40.4g
3) a) i) 80 ; 10 ii) 80 × 10 = 800mg
    b) 78.4 × 12 = 940.8mg
4) 4.3 ÷ 10 = 0.43g
5) a) $2400 ÷ 8 = $300 (or similar)
    b) 2565 ÷ 8 = 320.625 so $320.63
6) 1.2 ÷ 0.06 = 120 ÷ 6 = 20 days (or similar)
7) i) 0.7 ; 400 ii) 0.7 × 400 = $280

Section D. Rounding, Integers

1) (a) 460,000
    (b) 76,400
    (c) 3000
    (d) 120
    (e) 0.89
    (f) 0.009
2) 37 + 25 = 62° difference
3) -30 + 34 = 4°C

Section E. Heart Rate

1. a) M = 183.5 beats per minute
2. b) Lower limit = .5 x 183.5 = 91.75 beats per minute
    Upper limit = .7 x 183.5 = 128.45 beats per minute