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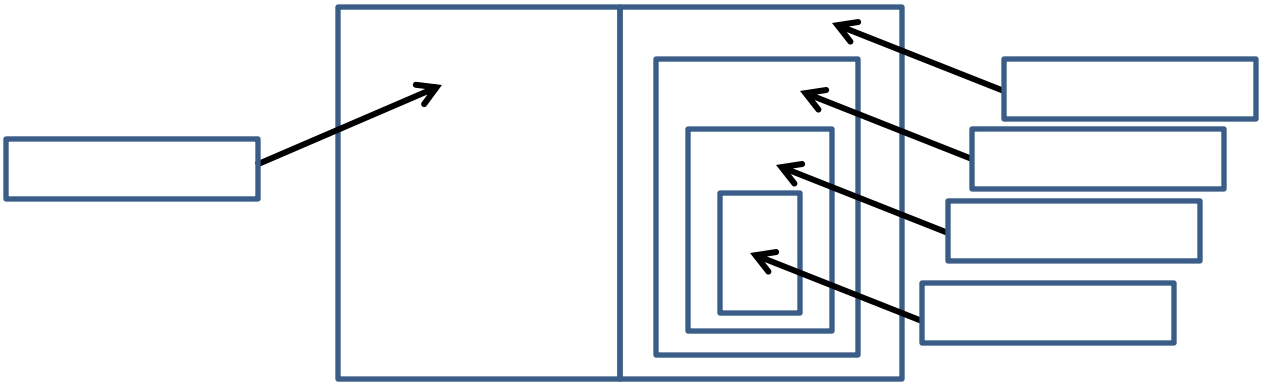
Mathematics, Science and Computer Department

INTENSIVE MATHEMATICS (PBM1035)
Session December 2017
SELF-EXERCISE 1

Instructions

- Answer ALL questions. Write your answers in the spaces provided.
- Show your working. You may use a non-programmable scientific calculator.

1. Complete the following diagram to illustrate how the natural numbers, whole numbers, integers, rational numbers and irrational numbers form the set of real numbers.



Real Numbers

2. Given a set of numbers $\left\{-10.2, -8,\ 0,\ \frac{7}{8}, \sqrt{17},\ 23,\ 25\frac{1}{8}, 1.2323\right\}$. List down the number(s) to the category of
   (a) Natural numbers
   (b) Whole numbers
   (c) Integers
   (d) Rational numbers
   (e) Irrational numbers

3. Convert the following improper fractions into mixed numbers.
   (a) $\frac{40}{9}$
   (b) $\frac{23}{7}$
   (c) $\frac{82}{5}$
   (d) $\frac{45}{11}$
   (e) $\frac{40}{3}$

4. Convert the following mixed numbers into improper fractions.
   (a) $9\frac{2}{3}$
   (b) $17\frac{1}{3}$
   (c) $7\frac{3}{4}$
   (d) $3\frac{3}{8}$
   (e) $1\frac{6}{7}$

5. Write five equivalent fractions of each of the following.
   (a) $\frac{2}{3}$
   (b) $\frac{3}{5}$
   (c) $\frac{4}{6}$

6. Which of the following pairs of fractions are equivalent and which are not.
   (a) $\frac{2}{3}$ and $\frac{8}{12}$
   (b) $\frac{5}{9}$ and $\frac{27}{15}$
   (c) $\frac{4}{5}$ and $\frac{5}{4}$

7. Calculate
   (a) 3×10^4
   (b) 3.27×10^3
   (c) $3 \div 10^2$
   (d) $4.32 \div 10^4$

8. Write the following numbers in standard form.
   (a) 5720
   (b) 443 000
   (c) 0.09
   (d) 7.4
   (e) 6 000 000
   (f) 0.000621