**Exponent TEST**

**NO Calculators**

1) Check each number set $\left(\frac{9}{4}\right)^{\frac{3}{2}}$ belongs to.

|  |  |  |
| --- | --- | --- |
| I | Whole Numbers |  |
| II | Integers |  |
| III | Rational Numbers |  |
| IV | Irrational Numbers |  |

2) If *x* represents the amount of money in your bank account, what is the restriction on the variable?

a. $x\in N$ b. $x\in Z$ c. $x\in R$ d. $x\in Q$

 3) Evaluate $\sqrt{0,04}$ .

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| a. | 0,2 | b. | 0,02 | c. | 0,002 | d. | 2 |

4) Evaluate $\left(-\frac{2}{5}\right)^{-3}$

a. – $\frac{8}{125}$ b. – $\frac{125}{8}$ c. $\frac{8}{125}$ d. $\frac{125}{8}$

 [4]

**Free Response Questions**

5) What is an irrational number? How can you know that a number is irrational when written in decimal form?   [2]

6) Write $\left(-\frac{5}{7}\right)^{-\frac{2}{7}}$ as a radical. [1]

7) Evaluate. Show as much work as possible. [4]
a) $\sqrt[9]{6^{18}}$ b) $\sqrt[5]{-0,00001}$ c) 0.027-1/3  d) $\sqrt{\left(-\frac{2}{3}\right)^{8}}$

8) Simplify and give your answers with positive exponents only: [8]
a) $\sqrt{4x^{5}}×6y^{-3}x^{-\frac{3}{2}}×2x^{-4}y^{-1}$ b) $\left(\frac{10x^{-5}y^{-2}}{25x^{-4}y^{3}}\right)^{-2}$

c) $\frac{\left(m^{3}n^{-3}\right)^{-\frac{1}{3}}}{\left(m^{-2}n\right)^{\frac{3}{2}}}$ d) $\frac{\left(3x^{-3}y^{4}\right)^{-3}×9x^{2}y^{-7}}{3x^{-4}y^{-3}}$

9) Order the following numbers without evaluating them. Show your work. $8^{2} , \sqrt[3]{2^{12}} , 4\sqrt{2} , 2^{7}$ [2]

10) Give the symbols that represents the following number sets, and give 2 examples for each set (that don’t belong to any smaller set) [4]

 - Rational Numbers

 - Natural Numbers

 - Integers

 - Real Numbers