| 9 Lycée Des Arts | Mathematics | $8^{\text {th}}$－Grade |
| :---: | :---: | :---: |
| Name： | ＂Square roots＂ | A．S－8．1． |

1）Classify the real numbers： $3,-5,0,-2,1.2,-4,-1.1 \& 7$ ，according to their signs．


2）Find the squares of the real numbers：

| The real numbers | 3 | -5 | -4 | -2 | -1.1 | 0 | 1.2 | 7 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Their squares |  |  |  |  |  |  |  |  |

3）Can you find a real number in which its square is negative？

## ＂っ゚ロ Conclusion：The square of a real number

4）Consider the following couples of real numbers：

| $1^{\text {st }}-$ couple | $2^{\text {nd }}-$ couple | $3^{\text {rd }}-$ couple | $4^{\text {th }}-$ couple |
| :---: | :---: | :---: | :---: |
| $2 \&-2$ | $3 \&-3$ | $\frac{1}{5} \&-\frac{1}{5}$ | $a \&-a$ |

Complete the statement below．What does each of the above couples represent？Justify．
They are $\qquad$ since，their sum is $\qquad$
5）Complete the following table：

|  | $1^{\text {st }}-$ couple | $2^{\text {nd }}-$ couple |  | $3^{\text {rd }}-$ couple |  | $4^{\text {th }}-$ couple |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Numbers | 2 | -2 | 3 | -3 | $\frac{1}{5}$ | $-\frac{1}{5}$ | $a$ | $-a$ |
| Their squares |  |  |  |  |  |  |  |  |

6）What do you notice about the squares of the above opposite numbers？

7）$Q \mathcal{Q} \mathcal{Z} \mathcal{A}$ table：

| 1. | List sixteen real squared numbers | ．．．．．．．．．．．．．．．．．25，36， |
| :---: | :---: | :---: |
| 2. | What is a squared number？ | A number ．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．． |

8）Find the real numbers whose squares are presented in the following table：

| Numbers | 0 | 1 |  | 4 | 9 | 16 | 100 | 3600 | 0.09 | 0.0016 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Square form |  |  | $(-1)^{2}$ | $(+1)^{2}$ |  |  |  |  |  |  |  |  |


| $\begin{array}{\|l} \hline \stackrel{\rightharpoonup}{u} \\ \text { Ẽ } \\ \text { むे } \\ \text { Q } \end{array}$ | Since the square of | $-1 \&+1$ | is equal to | 1 | then | $-1 \&+1$ | are called the square roots of | 1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | $-7 \&+7$ |  | 49 |  | $-7 \&+7$ |  | 49 |

Def：If ais any real positive number，then there exist a number whose square is $a$


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－$\ominus$ Conclusions：How many square roots does a real number admit？Discuss．

| Type of the number | Number \＆sign of the roots if they exist | Give example |
| :--- | :---: | :---: |
| Positive real number | Admits two square roots one is positive the other is | Square roots of 16 are $4 \&-4$ |
| Negative real number |  |  |
| Zero（null） | Has one square root only itself | Square root of 0 is |

