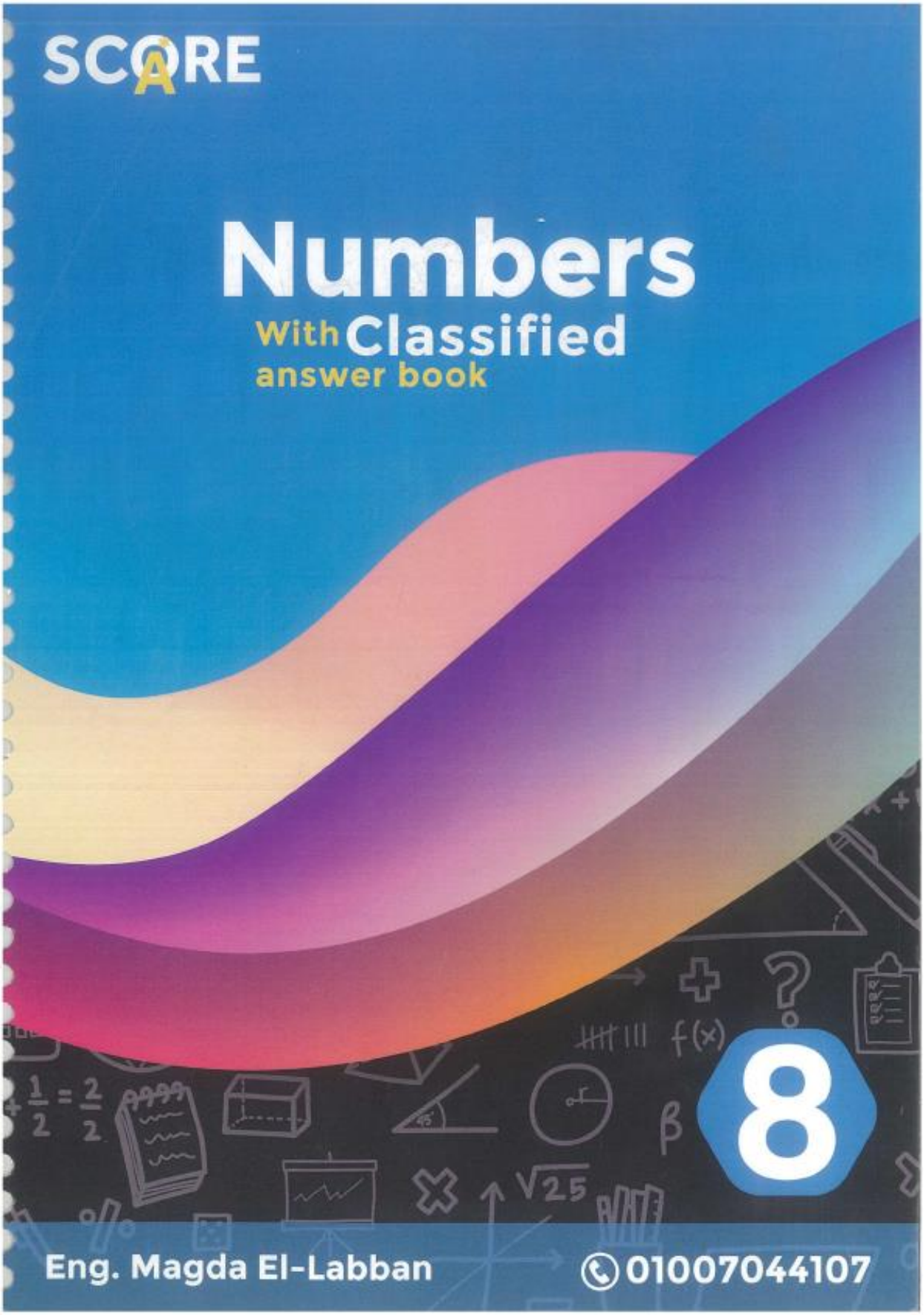
Classified- Rational & Irrational Numbers



1- Rational and Irrational Numbers

Multiple Choice: Choose (by circling) the best answer 2 questions have multiple answers

1. Which statement is NOT true about Rational Numbers?
   a. Whole Numbers are Rational Numbers
   b. Only fractions are Rational Numbers
   c. Integers, Whole Numbers, and Natural numbers are Rational Numbers
   d. Repeating decimals and terminating decimals are Rational Numbers

2. Which statement is TRUE?
   a. All Integers are Rational Numbers.
   b. A number can be both Rational and Irrational.
   c. Every Integer is a whole number.
   d. All Real Numbers are Rational

3. Which of the following statements is FALSE?
   a. All Natural Numbers are integers.
   b. All Rational Numbers are Integers.
   c. Irrational Numbers contain all decimals.
   d. Fractions are Rational Numbers.

4. Which set contains NO Irrational Numbers?
   a. $0.5, \frac{2}{7}, -5.333333..., n$
   b. $\sqrt{25}, \sqrt{1}, \sqrt{64}, \sqrt{20}$
   c. $\sqrt{25}, 4\frac{2}{9}, 0.8, -7$
   d. $\frac{37}{8}, 0, \sqrt{36}, 3.45$

5. Which below represents a rational number?
   a. $\sqrt{24}$
   b. $\sqrt{20}$
   c. $\sqrt{25}$
   d. $\sqrt{37}$

6. Which number is an irrational number?
   a. 5.499
   b. $\sqrt{17}$
   c. $-\sqrt{9}$
   d. -10

7) Which number in the list is NOT an integer? $\frac{12}{4}, -4^2, \sqrt{25}, -4.8$

   a. $\frac{12}{4}$
   b. -4^2
   c. $\sqrt{25}$
   d. -4.8

8. Which of these numbers are integers?

1.8 $\quad -1.8 \quad -1 \quad -18 \quad 0$

9. $\frac{1}{4}$ isn't an integer but $\frac{8}{4}$ is.

Do you agree with Dora?

10. Which of these cards have integer values?

$\sqrt{25}$	$\sqrt{50}$	$\sqrt{125}$	$\sqrt[3]{125}$
$\sqrt{9 \times 4}$	$\sqrt{2 \times 32}$	$\sqrt{12 \times 4}$	$\sqrt[3]{9 \times 3}$

11. Investigate whether the statements are always, sometimes or never true.

Integers are rational numbers

Rational numbers are integers

Rational numbers are real numbers

Terminating decimals are rational numbers

Recurring decimals are rational numbers

The square roots of negative numbers are real. but not rational

12. Tick the irrational numbers in this list.

a $\sqrt{4}$ b $\sqrt{17}$ c $\sqrt{37}$ d $\sqrt{16}$ e $\sqrt{79}$

13. a. Tick the rational numbers in this list.

$\sqrt{1}$ $7\frac{5}{12}$ -38 $\sqrt{160}$ $-\sqrt{2.25}$ $-\sqrt{35}$

b. Tick the irrational numbers in this list.

0.3333... -16 $\sqrt{200}$ $\sqrt{1.21}$ $\frac{23}{8}$ $\sqrt[3]{343}$

14. Write whether each of these numbers is an integer or a surd.

a $\sqrt{100}$ ..... b $\sqrt[3]{100}$ .....

c $\sqrt{1000}$ ..... d $\sqrt[3]{1000}$ .....

e $\sqrt{10000}$ .....

15. Look at the numbers in the box. Draw a ring around all the irrational numbers.

π	$\frac{2}{5}$	1.289
$\sqrt[3]{8}$	$\sqrt{8}$	$1.\dot{5}$

16. Is each of these answers rational or irrational?

i $\sqrt{8}\times\sqrt{2}$ ii $\sqrt{3}\times\sqrt{12}$

iii $\sqrt{20}\times\sqrt{5}$ iv $\sqrt{2}\times\sqrt{18}$

17. a. Give a rational number between $\sqrt{29}$ and $\sqrt{45}$

b. Give an irrational number between 8 and 12.

c. Write down two rational numbers and two irrational numbers between 6 and 7.

Two rational numbers ---------- , ----------

Two irrational numbers ---------- , ----------

18. From the list of numbers $\frac{22}{7}, \pi, \sqrt{14}, \sqrt{16}, 27.4, \frac{65}{13}$ write down

(a) one integer,

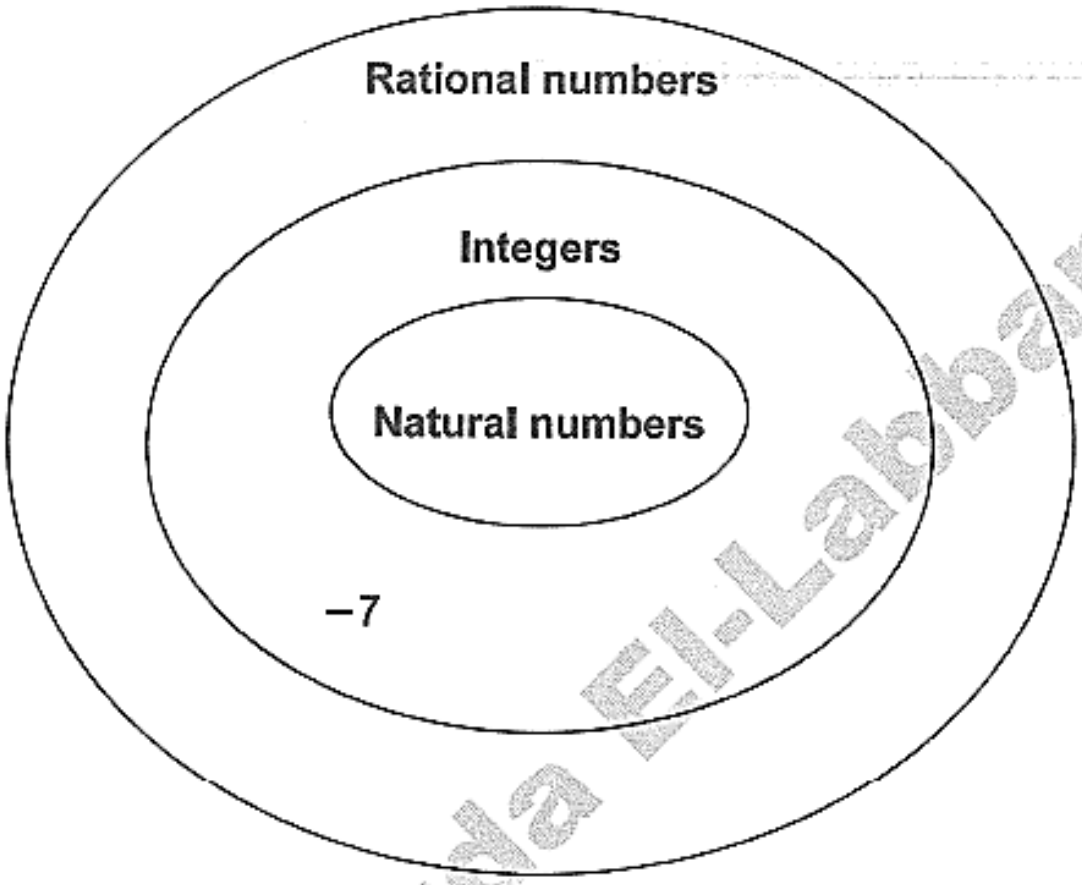
(b) one irrational number.

(c) $\sqrt{2}$ 5.85 2 π

Write down all the numbers in this list that are irrational.

19. Write down an irrational number with a value between 4 and 5.

20 (a) Here is a Venn diagram.



Write each of these numbers in the correct part of the Venn diagram.
One has been done for you.

-7 12 $\sqrt{36}$ 4.7 $-\frac{55}{11}$ $-\frac{2}{3}$

(b) Here is a list of words.

rational irrational prime odd square

Complete the sentence using the correct word from the list.

$\sqrt{3}$ and $\sqrt{5}$ are examples of ..... numbers.

21 Pierre writes down a three-digit number using **three** of the digit cards.

The first two digits of his number are even and the last digit is odd.

Write a list of **all** the possible three-digit numbers Pierre could write.