Choose :-

1) $5^2 \times 5^3 =$ ..... (5^6 , 5^5 , 5 , 5^{32})

2) The multiplicative inverse of the number $(-\frac{3}{4})^{zero}$ is .....

(-1 , $-\frac{4}{3}$, $\frac{4}{3}$, 1)

3) The additive inverse of the number $(-2)^3$ is .....

(8 , -8 , -4 , 6)

4) $(-1\frac{1}{4})^3 =$ .....

($\frac{125}{64}$, $-\frac{125}{64}$, $\frac{25}{16}$, $-\frac{1}{64}$)

5) If a = b , then $(\frac{5}{7})^{a-b} =$ ..... ($\frac{5}{7}$, $\frac{7}{5}$, 1 , zero)

Calculate in the simplest form :-

1) $\left(\frac{3}{5}\right)^7 \div \left(\frac{3}{5}\right)^5 \times \frac{3}{5}$

2) $\frac{x^5 \times x^8}{x^3 \times x^2 \times x^4}$, $x \neq 0$

3) $(-\frac{c^2}{d})^3$

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

Find in the simplest form :-

1) $\left(2\frac{1}{4}\right) \div (-1\frac{1}{2})^2$

2) $(-\frac{2}{3})^3 \times (\frac{1}{3})^3 \div (-\frac{2}{9})^2$

The Egyptian language school **Algebra (1st prep.)**

Mathematics department **Sheet no. (2)**

Choose :-

1) $(\frac{1}{3})^4$ = ... $(\frac{1}{27}, \frac{4}{81}, \frac{1}{81}, \frac{4}{27})$

2) $(a^2)^4$ = ... (a^6, a^8, a^2, a^4)

3) $\frac{(y^5)^2}{y^3}$ = ..., $y \neq 0$ $(y^4, y^{13}, y^{10}, y^7)$

4) The additive inverse of the number $(-\frac{3}{4})^2$ = ...

$(\frac{9}{16}, -\frac{9}{16}, -\frac{3}{4}, \frac{3}{4})$

5) The quarter of the number 4^{20} = ...

$(4^5, 4^{10}, 4^{19}, 2^{10})$

6) $2^5 + 2^5$ = ... $(4^5, 2^{10}, 2^6, 2^{20})$

Complete :-

1) $\frac{64}{125} = (\frac{4}{5})^{.....}$

2) $(\frac{3}{5})^2 \times (\frac{5}{3})^{zero}$ = ...

3) $(-\frac{1}{3})^3 \times (\frac{3}{2})^2$ = ...

4) If a = -3 , b = -2 , then $(\frac{b}{a})^3$ = ...

If $a = -\frac{1}{2}$, b = 2 , $c = \frac{3}{4}$, then **find the numerical value of the expression**

$a^3b^2 + b^2c - 8abc$

The Egyptian language school **Algebra (1st prep.)**

Mathematics department **Sheet no. (3)**

Choose :-

1) If $X^{-1} = \frac{1}{2}$, then X = ... $(\frac{1}{2}, -\frac{1}{2}, 2, -2)$

2) $\frac{(-2X^2Y^3)^3}{(-4XY^2)^2}$ = ..., XY ≠ 0 $(\frac{X^3}{2Y}, \frac{-X^4}{2Y}, \frac{X^5}{2Y^2}, \frac{X^4}{Y})$

3) $\frac{6a^2X^4}{2a^3X^3}$ = ..., X ≠ 0 $(3aX, 3a^5X^7, \frac{3X}{a}, \frac{3}{aX})$

4) $(3^2)^5$ = ... $(3^5, 3^3, 3^{10}, 3^7)$

5) If $X = \frac{1}{2}$, $Y = \frac{1}{4}$, then $X^2 + Y$ = ... $(\frac{3}{4}, \frac{1}{2}, \frac{9}{16}, 1)$

6) $(\frac{m^2}{n^{-3}})^{-1} \times (\frac{3m^{-2}}{n^{-2}})^{-2}$ = ..., mn ≠ 0 $(\frac{9m^2}{n^7}, \frac{m^2}{9n^7}, \frac{m^2}{9n}, \frac{9m^6}{n})$

Complete :-

1) $2X^{-4} = \frac{2}{.....}$

2) $2\frac{1}{4} = (\frac{3}{2})^{.....}$

3) $5^6 \times 5^{-6} = 7^{.....}$

4) $5^{-3}\,(\frac{3}{2})^{zero}$ = ...

5) If $X = \frac{1}{4}$, $Y = \frac{1}{8}$, then $(X - Y)^{-1}$ = ...

6) $(3a^2)^{-1} = \frac{1}{.....}$

Calculate :-

1) $\frac{5^{-2} \times 5^5}{5^3}$

2) $(\frac{3^4 \times 7^2}{7^3 \times 3^2})^{-1}$

3) $\frac{X^2Y^2 \times X^2Y \times Y^2}{X^2 \times Y^2}$

If $X = \frac{1}{2}$, $Y = \frac{1}{8}$, **find the value of the expression** $(2X - Y)^{-2} \times Y$

The Egyptian language school — Algebra (1st prep.)

Mathematics department — Sheet no. (4)

Write in the standard form :-

1) -2540000

2) 0.000046

3) 0.7×10^{-7}

4) 0.0435×10^{9}

Choose :-

1) If $0.000237 = 2.37 \times 10^{n}$, then n = ... (4 , 2 , -4 , -2)

2) $(X^{-2})^{3}$ = ..., $X \neq 0$ (X^{-6} , X^{-5} , X , X^{6})

3) Which of the following = $\frac{1}{4}$ million?

(25×10^{5} , 0.25×10^{5} , 0.25×10^{6} , 0.25×10^{7})

4) $(\frac{2}{5})^{-1} \div \frac{5}{2}$ = ... (1 , $\frac{5}{2}$, $\frac{25}{4}$, $\frac{4}{25}$)

5) 2.37×10^{-4} = ...

(0.00237 , 0.000237 , 23700 , 0.0000237)

Find the result in standard form :-

1) $(4.4 \times 10^{3}) \times (2 \times 10^{5})$

2) $(5.8 \times 10^{7}) + (3.2 \times 10^{5})$

3) $(65.5 \times 10^{-2}) \div (5 \times 10^{2})$

4) 60000 x 5000

The Egyptian language school **Algebra (1st prep.)**

Mathematics department **Sheet no. (5)**

Choose :-

1) $3 \times 2 - 16 \div 8 =$ ..... (4 , 6 , 2 , 3)
2) $12\ (2^2) \div 24 + 3^2 =$ ..... (4 , 5 , 11 , 13)
3) $4 + 2 \times 3 =$ ..... (18 , 10 , 14 , 24)
4) If the thickness of a piece of paper = 0.012 cm , then which of the following is the height of a ream of 600 pieces of paper?
(72×10^{-3} , 72×10^{-2} , 72 , 7.2×10^{zero})

Calculate :-

1) $8 \times 2^2 - 7 \times (4 + 1)$

2) $2((5^2 + 1) - (4^2 - 1))$

3) $\frac{5+2 \times 5}{2^2+1}$

4) $16 \div \frac{1}{4} - \frac{3}{4} \times 10^2 + 25$

Simplify :-

1) $2 - [(7 - 3) - 2]$

2) $144 - 8 \div 2^3$

3) $\left(\frac{-3}{7}\right)^0 \times \frac{25}{4} \times \left(\frac{-2}{5}\right)^2$

4) $3ab + 8a \div (4b)$, when $a = 4$ and $b = -2$

Choose :-

1) $\sqrt{\frac{9}{16}}$ = ... $(\frac{3}{4}, \frac{4}{3}, -\frac{3}{4}, -\frac{4}{3})$

2) The number $\sqrt{0.09}$ is .....

(natural , positive integer , negative integer , rational)

3) $\sqrt{(\frac{-2}{3})^2}$ = ... $(\frac{-4}{9}, \frac{-2}{3}, \frac{2}{3}, \frac{4}{9})$

4) The additive inverse of $\sqrt{\frac{9}{25}}$ is ..... $(\frac{-3}{5}, \frac{3}{5}, \frac{9}{25}, \frac{-9}{25})$

5) The multiplicative inverse of $\sqrt{\frac{9}{16}}$ is ..... $(\frac{-4}{3}, \frac{3}{16}, \frac{3}{4}, \frac{4}{3})$

6) $\sqrt{16+9}$ = 4 + ... (1 , 3 , 5 , 25)

7) $\sqrt{(-7)^2}$ = ... (49 , 7 , -7 , ± 7)

8) $\sqrt{10^2 - 8^2}$ = ... (2 , 6 , ± 2 , ± 6)

9) $\sqrt{\sqrt{16}}$ = ... (16 , 8 , 4 , 2)

If $(AB)^2 = 144\ cm^2$, $(BC)^2 = 625\ cm^2$ and $B \in \overline{AC}$, then find the length of $\overline{AC}$

Simplify :-

$(-\frac{1}{2})^3 \times \sqrt{\frac{25}{9}} \times \sqrt{(\frac{8}{5})^2} \times 3^{-1}$

Choose :-

1) The age of Ahmed now is X years, then his age 5 years ago is ..... years. (5X , 5 + X , 5 – X , X – 5)

2) Ahmed's age 3 years ago was X, then his age now is ..... Years. (X + 3 , X – 3 , 3 – X , 3X)

3) If X is an odd number, then the next odd number directly is ..... (X + 1 , X + 2 , 2X , 2X + 1)

4) If 3X = 21 , then X = ... (28 , 40 , 16 , 7)

5) The $\mathbb{S}.\mathbb{S}.$ of the equation X – 2 = 3 in $\mathbb{N}$ is ..... ({5} , {-5} , {0} , ϕ)

6) The solution set of the equation 2X + 1 = -3 in $\mathbb{N}$ is ..... ({1} , {2} , {4} , ϕ)

7) If 2X = 12 , then 3X = ... (6 , 4 , 3 , 18)

8) If 3X = 5 , then the value of 12X = ... (4 , 20 , 36 , 60)

9) If 5X = 20 , then X + 3 = ... (16 , 12 , 17 , 7)

10) If 5X = 35 , then 2X + 1 = ... (7 , 8 , 15 , 71)

The Egyptian language school **Algebra (1st prep.)**

Mathematics department **Sheet no. (8)**

Choose :-

1) The $\mathbb{S}.\mathbb{S}.$ of the inequality $X < 2$ in $\mathbb{N}$ is ..... ({0} , {1} , {0,1} , $\emptyset$)
2) The S.S. of the inequality $1 < X \leq 3$ is ..... ({3} , $\emptyset$, {2,3} , {1,3})
3) If $-X < 3$, then X ..... -3 (< , = , > , $\leq$)

Find the S.S. of the inequalities in $\mathbb{Q}$:-

1) $2X \geq 1$

2) $X + 5 > 9$

3) $3X + 8 \leq 1$

4) $11 - 2X > 17$

5) $3X - 2 \leq 3 - 2X$

Solve the inequality in and represent it on the number line:-

$-2X - 3 \geq 1$

Find the solution set of the inequality in $\mathbb{Z}$ and in $\mathbb{Q}$:-

$2X + 5 < 16$

Choose :-

1) In an experiment of throwing a regular die once, the probability of appearance of a number greater than 6 is ..... $(0, 1, \frac{1}{6}, \frac{1}{4})$

2) If a die is tossed once, then the probability of getting a number that satisfies the inequality $2 < X < 3$ is ..... $(\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, 0)$

3) If the probability that a pupil succeed is 75%, then the probability of his failure is ..... (-0.75 , 0.25 , 0.75 , 1.25)

4) The probability of success of a student is $\frac{7}{10}$, then the probability of failure is ..... $(0.7, 1, \frac{1}{10}, \frac{3}{10})$

5) Ebrahim is in a grade 7 class of 36 students and 16 of them are girls. If a student is selected randomly from the class, what is the probability that the student is a boy? $(\frac{4}{9}, \frac{1}{2}, \frac{5}{9}, \frac{1}{36})$

6) There are 480 pupils in a school, 120 of them failed. A pupil is chosen randomly, then the probability that the pupil succeeded is .....

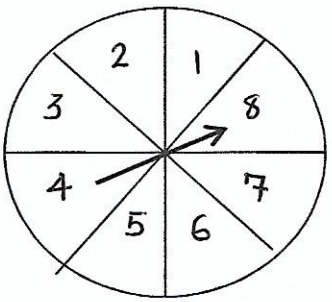
(0.25% , 0.75 , 0.8 , 0.667)

7) A letter is selected randomly from the word "Nora" , the probability of selecting the letter N is ..... $(\frac{1}{4}, \frac{2}{4}, \frac{3}{4}, \frac{4}{4})$

8) **In the opposite figure:**

The probability that the pointer will stop at a number greater than 6 equals .....

$(\frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{3}{4})$



The Egyptian language school **Algebra (1st prep.)**

Mathematics department **Sheet no. (10)**

Choose :-

1) If a > b and c is a negative number, then ac ..... bc (< , > , = , ≥)
2) $\frac{x}{5} < 5$ is equivalent to ..... ($x < \frac{5}{2}$, $x > \frac{5}{2}$, $x < 10$, $x > 10$)
3) The probability of an impossible event = ... (1 , 0 , - 1 , $\frac{1}{2}$)
4) The sum of the probabilities for all possible outcomes of a random experiment is ..... (0, 1 , <1 , >1)
5) Which of the following numbers is the probability of the occurrences of an event? (1.2 , - 0.4 , 3.15 , 75%)
6) If a coin is flipped once, the probability of appearance of a tail is ..... (1 , 0.5 , 0 , 2)
7) If a coin is tossed 160 times then the approximate number of appearance of a head is ..... (60 , 78 , 90 , 159)
8) If a die is rolled once, then the probability of getting an even number on the upper face is ..... ($\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{2}{3}$)
9) A regular die is rolled once, then the probability of getting a number less than 3 is ..... ($\frac{1}{2}$, $\frac{1}{3}$, $\frac{2}{3}$, $\frac{1}{6}$)

A card is drawn randomly from 10 cards numbered from 1 to 10, then calculate the probability of drawing :

1) Card carries an odd number greater than 10
2) Card carries an even number less than 10
3) Card carries a prime number

A box contains 10 balls numbered from 1 to 10. If a ball is drawn randomly, then find the probability of :

1) Getting a number divisible by 7
2) Getting an even number
3) Getting a number less than 8