This is a Class 1 exam

Lebanon Evangelical School for Boys and Girls

Lebanon Evangelical School

for Boys and Girls Loueizeh - Baabda

Stage Exam 01

06NOV2023

Do NOT write in this box. Your MARK will be placed here.

Subject :	Maths
Class :	9A
Teacher :	Mrs. Claudine Eid
Duration :	1 hour
Calculators are allowed	

Your name :		*Time taken to complete exam*
Your Class :		
Exam Room :		
How many sheets, including cover sheet :		

- Do not open this paper until the teacher in charge instructs you to do so.
- The most important thing to remember in taking an exam is NEVER PANIC.
- If you are caught cheating in this exam, you will be awarded zero for ALL exams that are taken on this day.

Answer ALL questions.

Write your answers in the space provided

You must write down all the stages in your working.

1. (a) Simplify $n^3 \times n^2$

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(1)

(b) Find the value of $36^{\frac{-1}{2}} \times 49^{\frac{1}{2}}$

---

(2)

(c) Find the value of $(\frac{8}{27})^{\frac{2}{3}}$

---

(2)

(d) Find the value of $\sqrt[4]{16 \times 10^{12}}$

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(2)

(Total for Question1 is 7marks)

2. (a) $p^4 \times p^x = p^{10}$

Find the value of x.

---

(1)

(b) $(7^3)^y = 7^{15}$ Find the value of y.

---

(2)

(c) $1000^a \times 100^b$ *can be written in the form* 10^w.

Show that $w = 3a + 2b$

---

(2)

(Total for Question2 is 5 marks)

3.

(a) Find the Lowest common multiple (LCM) of 54 and 36

---

(2)

(b) Find the highest common (factor) HCF of 45 and 60

---

(2)

(c) Here is a list of five numbers.
Find the lowest common multiple of these five numbers

98^{45} 98^{60} 98^{92} 98^{18} 98^{37}

---

(1)

(Total for Question3 is 5 marks)

4. (a) Simplify $(-\frac{3n}{m^4})^0$

---

(1)

(b) Simplify $(-2n^5w^3)^3$

---

(2)

(c) Find the value of $(25x^{-4}y^6)^{\frac{-1}{2}}$

---

(3)

(Total for Question4 is 6marks)

5. (a) Write $\frac{2^6}{4^4}$ as a power of 2

---

(2)

(b) Rationalize the following

i) $\frac{5}{\sqrt{3}}$

---

(1)

ii) $\frac{9}{\sqrt{27}}$

---

(2)

(Total for Question5 is 5marks)

6. Work out a) $5\times(5^2-2^3)-3^2$

.....

(2)

b) $\sqrt{9}\times\sqrt[3]{-27}\times\sqrt[3]{-125}$

.....

(3)

(Total for Question6 is 5marks)

7. (a) Write 1.84×10^{-3} as an ordinary number

---

(1)

(b) Work out the value of $(6.65 \times 10^4) - (3 \times 10^2)$

Give your answer in standard form

---

(2)

(c) Write these numbers in order of size. Start with the smallest number.

1.27×10^5 12.7×10^{-4} 127×10^4 0.000 127

---

(2)

(Total for Question7 is 5marks)

8. ***(a) Work out an estimate for the value of*** $\sqrt{48.3 \times 82.7}$

.....

(1)

(b) Work out $(12.7 \times 10^5) \times (3.2 \times 10^{-8})$

Give your answer as an ordinary number.

.....

(2)

(Total for Question8 is 3marks)

9.

Jack is in a restaurant .

There are 5 starters , 8 main courses and some desserts on the menu .

Jack is going to choose one starter , one main course and one dessert .He says there are 240 ways that he can choose his starter , his main course and his dessert .

Could jack be correct ?

You must show how you get your answer .

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(2)

(Total for Question9 is 2marks)

TOTAL FOR PAPER IS 43 MARKS

Answer ALL questions.

Write your answers in the space provided

You must write down all the stages in your working.

1. (a) Simplify $n^3 \times n^2$

[1] n^5

(1)

(b) Find the value of $36^{\frac{-1}{2}} \times 49^{\frac{1}{2}}$

[1] $\dfrac{(7^2)^{\frac{1}{2}}}{(6^2)^{\frac{1}{2}}} = \dfrac{7}{6}$ [1]

(2)

(c) Find the value of $(\frac{8}{27})^{\frac{2}{3}}$

[1] $\dfrac{(2^3)^{\frac{2}{3}}}{(3^3)^{\frac{2}{3}}} = \dfrac{2^2}{3^2} = \dfrac{4}{9}$ [1]

(2)

(d) Find the value of $\sqrt[4]{16 \times 10^{12}}$

$\sqrt[4]{2^4 \times 10^{12}} = 2^{\frac{4}{4}} \times 10^{\frac{12}{4}}$ [1]

$= 2 \times 10^3$ [1] $= 2000$ [1]

(2)

(Total for Question1 is 7marks)

2. (a) $p^4 \times p^x = p^{10}$

Find the value of x.

$4 + x = 10$ [1]

$x = 10 - 4$

$x = 6$

---

(1)

(b) $(7^3)^y = 7^{15}$ Find the value of y.

$3y = 15$ [1]

$y = 5$ [1]

---

(2)

(c) $1000^a \times 100^b$ *can be written in the form* 10^w.

Show that $w = 3a + 2b$

$10^{3a} \times 10^{2b} = 10^w$ [1] [1]

$3a + 2b = w$

---

(2)

(Total for Question2 is 5 marks)

3.

(a) Find the Lowest common multiple (LCM) of 54 and 36

$54 = 3^3 \times 2$ 1

$36 = 3^2 \times 2^2$

LCM $= 3^3 \times 2^2 = 108$ 1

(2)

(b) Find the highest common (factor) HCF of 45 and 60

$45 = 3^2 \times 5$

$60 = 3 \times 2^2 \times 5$ 1

HCF $= 3 \times 5 = 15$ 1

(2)

(c) Here is a list of five numbers.
Find the lowest common multiple of these five numbers

98^{45} 98^{60} 98^{92} 98^{18} 98^{37}

$(98)^{92}$ 1

(1)

(Total for Question3 is 5 marks)

4. (a) Simplify $(-\frac{3n}{m^4})^0$

1 [1]

(1)

(b) Simplify $(-2n^5w^3)^3$

$(-2)^3 n^{15} w^9$ [1]

$-8n^{15}w^9$ [1]

(2)

(c) Find the value of $(25x^{-4}y^6)^{\frac{-1}{2}}$

$$\frac{1}{(25x^{-4}y^6)^{\frac{1}{2}}} = \frac{1}{(5^2x^{-4}y^6)^{\frac{1}{2}}}$$

$$= \frac{1}{5x^{-2}y^3} = \frac{x^2}{5y^3}$$ [1] [1] [1]

(3)

(Total for Question4 is 6marks)

5. (a) Write $\frac{2^6}{4^4}$ as a power of 2

$$\frac{2^6}{(2^2)^4} = \frac{2^6}{2^8} = \frac{1}{2^2} = 2^{-2}$$

(2)

(b) Rationalize the following

i) $\frac{5}{\sqrt{3}}$

$$\frac{5\sqrt{3}}{\sqrt{3}\sqrt{3}} = \frac{5\sqrt{3}}{3}$$

(1)

ii) $\frac{9}{\sqrt{27}}$

$$\frac{9}{\sqrt{9\times3}} = \frac{9}{\sqrt{3^2\times3}} = \frac{9}{3\sqrt{3}}$$

$$\frac{3\sqrt{3}}{\sqrt{3}\sqrt{3}} = \frac{3\sqrt{3}}{3} = \sqrt{3}$$

(2)

(Total for Question5 is 5marks)

6. Work out a) $5\times(5^2-2^3)-3^2$

$5 \times (25 - 8) - 9$ [1]

$5 \times (17) - 9$

$85 - 9$ [1]

$= 76$

(2)

b) $\sqrt{9} \times \sqrt[3]{-27} \times \sqrt[3]{-125}$

$\sqrt{3^2} \times \sqrt[3]{-3^3} \times \sqrt[3]{-5^3}$

$3 \quad (-3) \quad (-5) = 45$ [1]

[1] [1]

(3)

(Total for Question6 is 5marks)

7. (a) Write 1.84×10^{-3} as an ordinary number

0.00184 [1]

(1)

(b) Work out the value of $(6.65 \times 10^4) - (3 \times 10^2)$

Give your answer in standard form

66500 − 300 = 66200 [1]

6.62×10^4 [1]

(2)

(c) Write these numbers in order of size. Start with the smallest number.

1.27×10^5 12.7×10^{-4} 127×10^4 0.000 127

127000 0.00127 1,270,000 0.000127

0.000127 (1) 12.7×10^{-4} [1] (2) 1.27×10^5 (3) [1] 127×10^4 (4)

(2)

(Total for Question7 is 5marks)

8. *(a) Work out an estimate for the value of* $\sqrt{48.3 \times 82.7}$

$\sqrt{49 \times 81} = 7 \times 9 = 63$

1

(1)

(b) Work out $(12.7 \times 10^5) \times (3.2 \times 10^{-8})$

Give your answer as an ordinary number.

$12.7 \times 3.2 \times 10^{-3}$

40.64×10^{-3}

1

$4.064 \times 10 \times 10^{-3}$

$4.064 \times 10^{-2} = 0.04064$

1

(2)

(Total for Question8 is 3marks)

9.

Jack is in a restaurant .

There are 5 starters , 8 main courses and some desserts on the menu .

Jack is going to choose one starter , one main course and one dessert .He says there are 240 ways that he can choose his starter , his main course and his dessert .

Could jack be correct ?

You must show how you get your answer .

$5 \times 8 \times = 240$

$\Rightarrow x = \frac{240}{40} = 6$ 1

the desserts could be 6

1

yes

(2)

(Total for Question9 is 2marks)

TOTAL FOR PAPER IS 43 MARKS