Question 1:
Consider the following numbers and then answer the questions below:

\[ 2\frac{3}{4}, 0.234 \ldots, \sqrt{-9}, 25, \sqrt[3]{-27}, \frac{5}{0}, 19 \]

From the list write down:

1.1. A prime number
1.2. A square number
1.3. An integer
1.4. A non-real number
1.5. A rational number

(5)

Question 2:

2.1. Determine the prime factors of 275 and 350

(4)

2.2. Now determine the highest common factor of 275 and 350

(3)
Question 3:
Calculate the following, showing working out where necessary.

3.1. \((-9) - (-5)\) \hspace{1cm} (2)

3.2. \(\frac{(-4) + (-8)}{2(-3)}\) \hspace{1cm} (3)

3.3. \(\sqrt{25} - 3\sqrt{-8} + (-2)^2\) \hspace{1cm} (4)

Question 4:
Calculate WITHOUT the use of a calculator and show all your calculations:

4.1. \(\left(1 + \frac{1}{4}\right) \div \frac{3}{4}\) \hspace{1cm} (3)

4.2. \(\frac{4}{27}\) of \(\frac{9}{16} - \frac{1}{8}\) \hspace{1cm} (3)

Question 5:
Simplify the following:

5.1. \(x^2 \cdot 2x^3 \cdot 5x^4\) \hspace{1cm} (2)

5.2. \((2a^3 \cdot 3ab^2)(-3a^2b)^2\) \hspace{1cm} (4)

5.3. \(\frac{(5p^3)(p^4q^3)^2}{10pq^3}\) \hspace{1cm} (4)

Question 6:
Consider the number pattern below and then answer the questions that follow:

\[11 ; 16 ; 21 ; \ldots\]

6.1. What are the next two terms? \hspace{1cm} (1)

6.2. Give the general formula in the form \(T_n = \ldots\) \hspace{1cm} (2)

6.3. What is the value of the 120th term? \hspace{1cm} (2)

6.4. What term is equal to 271? \hspace{1cm} (3)
Question 7:
Consider the expression below and then answer the questions that follow

\[ 9 + 3x^2 - 4x^3 - 4x \]

7.1. Rewrite the expression in descending order
7.2. How many terms are there in the expression?
7.3. What is the coefficient of \( x^2 \)?
7.4. Determine the value of the expression if \( x = -1 \).

Question 8:
Write algebraic expression for the following:

8.1. The square root of the product of 4 and \( b \)
8.2. The sum of three times \( p \) and the square root of \( q \)
8.3. The product of four times \( a \) and the difference between \( b \) and 7

Question 9:
Simplify the following

9.1. \( -(-4x)^3 - x^2\cdot x \)
9.2. \( 4x^2y^3(2x-1) - 2x^3y^2(4y) \)
9.3. \( \frac{4x^2y + 5x^2y}{3xy^2} \)
9.4. \( \frac{2x^3y^2 + 4xy^2 - 10x^2y^2}{2xy^2} \)

Question 10:
Solve for \( x \):

10.1. \( 7 + x = -2 \)
10.2. \( x + 3 = 2x - 5 \)
10.3. \( 4(x + 3) = 5(6 - 2x) + 3 \)
10.4. \( \frac{3x}{4} = 12 \)  

10.5. \( \frac{3x-2}{4} = 4 \)  

10.6. \( 2x^2 = 8 \)  

**Question 11**

Write an expression for the distance from A to B in terms of x and simplify.

![Diagram](image)

**Question 12:**

On the answer sheet provided, complete the following construction.

Use a pencil, ruler and compass. Do not erase construction lines. Work neatly.

12.1. Bisect line AB.  
12.2. Label the midpoint C.  
12.3. Measure CD = 5cm vertically.  
12.4. Join A and D and measure line segment AD.  
12.5. Bisect angle DCB.

TOTAL: 100 MARKS