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QUESTION 1

Use the list below to answer the following questions

$\sqrt{-16}$; 2 ; π ; $-\frac{0}{5}$; $\sqrt[3]{-8}$; $3,\dot{7}$; 9,456 ; $\sqrt{2}$; 25 ; - 4 ; 5,326491… ; 1

Write down :

1.1 The smallest prime number. [1]

1.2 Two integers with a sum of - 6. [1]

1.3 All the imaginary (non-real) numbers. [1]

1.4 The first four rational numbers in the list. [1]

1.5 One irrational number. [1]

1.6 Two factors of 50 with a sum of 27. [1]

1.7 The reciprocal of a ½. [1] /7/

QUESTION 2

2.1 Write 1024 as a product of its prime factors. [3]

2.2 Hence, determine $\sqrt{1024}$, without the use of a calculator. [2] /5/

QUESTION 3

3.1 How many terms in the following expressions?

3.1.1 $2(x^2 - 3y)$ [1]

3.1.2 $2 - (x^2 - 3y) + \frac{x-9}{3}$ [1]

3.2 Consider : $4k^4 - 7k^3 + 9 - 2k$

3.2.1 What is the degree of the expression ? [1]
3.2.2 Write down the exponent of k in the second term. [1]
3.2.3 Give the coefficient of the last term. [1]
3.2.4 Write down the constant term [1]
3.2.5 Calculate the value of the expression if k = -1 [2] /8/

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QUESTION 4

Simplify.

4.1 $4m - 7m$ [1]

4.2 $(4m)(-7m)$ [2]

4.3 $2ab^2 + 7ab - 5ab^2 + 10ba$ [2]

4.4 $3pq \times 6q^3$ [2]

4.5 $3(a^2 - 2ab) - (a^2 - 7ab)$ [4]

4.6 $\frac{-44x^3y}{-11xy^3}$ [2]

4.7 $(-7\ m^3)^2$ [2]

4.8 $3a \times 3 + 3 \times 2a + 4a$ [2]

4.9 $24m + 3m \div 3 - (2m + 6m) \times 2$ [3] /20/

QUESTION 5

5.1 Write the following in scientific notation.

5.1.1 77 330 000 [1]

5.1.2 $3{,}57 \times 1000 \times 2{,}7 \times 10^5$ [2]

5.2 Arrange the following in ascending order : 0,0052 ; 0,00507 ; 5×10^{-3} [1]

5.3 Determine the value of P in each of the following if x = -2 and y = 3

5.3.1 $P = 2x - 3y$ [2]

5.3.2 $P = \frac{1}{2}x^2 + 4xy$ [3] /9/

QUESTION 6

No calculator to be used in this question . Show all work.

Simplify.

6.1 $\sqrt{2\frac{1}{4}}$ [2]

6.2 $\sqrt{100-64} \div 2$ [2]

6.3 $1\frac{1}{9} - 2\frac{1}{3} + \frac{9}{18}$ [4]

6.4 $\frac{4}{7} \div 2\frac{4}{5} \times \frac{3}{4}$ [3]

6.5 $\frac{2x-7x}{5} + \frac{2x^2+7x^2}{3x}$ [4] /15/

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QUESTION 7

Solve for x :

7.1 $-4x = 48$ [1]

7.2 $22 - 3x = 3x - 2$ [3]

7.3 $4 - (x - 5) = 2(x - 3) - (3 + 2x)$ [5]

7.4 $x : 4 = 6 : 18$ [3]

7.5 The circumference of a rectangle is 36cm. The length is twice the breadth.
Let the breadth = x . Make use of an equation to determine the breadth. [4] /16/

QUESTION 8

8.1 Write the ratio in its simplest form.

2m : 40cm [1]

8.2 John and Amanda pays R800 and R 1200 respectively into the same savings account. The combined interest that they receive is R500.
Determine how much interest each should receive. [4]

8.3 It takes 6 hours to travel 390km. How long will it take to travel 520km if travelled at the same average speed? [2]

8.4 Give the next two terms in each pattern.

8.4.1 15 ; 11 ; 7 ; …… [2]

8.4.2 5 ; 10 ; 20 ; …… [2] /10/

QUESTION 9

9.1 Mike sells a skateboard for R320 which he bought for R250.
Calculate the percentage profit that Mike makes. [2]

9.2 Mike saves R300 at 12% simple interest for 3 years.

9.2.1 How much interest does Mike earn over the 3 years. [2]
9.2.2 What is the amount that Mike will receive at the end of the 3 years. [1]

9.3 Robert buys a mountain bike for R4500. He pays cash and qualifies for a 20% discount.
How much does Robert actually pay for the mountain bike. [2]

9.4 Robert buys a helmet. The helmet costs R550 if bought at the local shop. He decides to buy the helmet from Britain for **£ 39** (pounds) (all costs included). The exchange rate is **R1 = £ 0,0853.** Determine how much money he saves by importing the helmet. [3] /10/

TOTAL :100