

GRADE 10
MATHEMATICS EXAMINATION

TIME: 1½ Hours

MARKS: 140

Question 1 Tick the appropriate column(s) in the table below.

(10)

	Factor of 24	Integ er	Natur al	Whol e	Ratio nal	Irrati onal	Non- real	Prime
$\sqrt{4}$								
$8 + 0$								
$\sqrt{-4}$								
$\sqrt{6}$								
$\frac{22}{7}$								
$\sqrt[3]{27}$								
17								
$\frac{0}{8}$								
0,3								
1.231...								

Question 2 Circle the correct letter.

- 2.1 What could the last digit of 172_ (a four-digit number) be if the number is divisible by 3? (1)
- A. 3;6;9
 - B. 2;5;8
 - C. 1;2;3
 - D. 1;4;7
- 2.2 A square number. (1)
- A. $\sqrt{4}$
 - B. 27
 - C. 16
 - D. 5
- 2.3 The LCM of 8 and 14. (1)
- A. 2
 - B. 112
 - C. 24
 - D. 56
- 2.4 123,799 rounded off to two decimal places. (1)
- A. 123,80
 - B. 124,00
 - C. 123,8
 - D. 123,800

Question 3

3.1 Write the number 900 as a product of its prime factors. (2)

3.2 Calculate $\sqrt{900}$ without using a calculator. (2)

Question 4 Simplify. Show all steps of working.

4.1 $(5 - 2 \times 3)^2 - 2 \sqrt[3]{-8}$ (3)

4.2 $-\sqrt{16+9} \div [(-5)^2(-5)]$ (3)

4.3 $1\frac{2}{3} - \left(1\frac{1}{5}\right)^2 \div \frac{2}{5} - 1$ (6)

Question 5

$$-3 + 2x - 5x^4$$

- 5.1 What type of expression is the one above? (1)
- 5.2 Write down the term with the largest coefficient. (1)
- 5.3 What is the index of the 3rd term? (1)
- 5.4 Write down any example of an algebraic expression that is a binomial with degree 2, in descending powers of x and with a constant term of 7. (1)

Question 6 Write out in full without using any numbers.

6.1 $4x + y^3$ (1)

6.2 $(x^3)^2 \div 2y$ (1)

Question 7 State the number of terms in each of the following algebraic expressions.

7.1 $\frac{7a-8b}{2b(a+2)}$ (1)

7.2 $-2a + 5(a - b) \div b^2 - \frac{b}{3a}$ (1)

Question 8 Simplify.

8.1 $7x - 7$ (1)

8.2 $abc + cab$ (1)

8.3 $y^2 + 7y - 2y^2 - 3y$ (2)

$$8.4 \quad -2(3xy^2)^3 \quad (2)$$

$$8.5 \quad \frac{2x^2}{10x^5} \quad (2)$$

$$8.6 \quad \frac{(6xy^2)(-5x^2y^3)}{-2(7x^3y^5 + 8y^5x^3)} \quad (4)$$

$$8.7 \quad \frac{8a^3 - 12a^2 + 4a}{4a} \quad (3)$$

$$8.8 \quad 3a(6a - b) - 2(-ab + 9a^2) \quad (3)$$

$$8.9 \quad 7x^2 + 3x^2(x-3) - \sqrt{16x^6} \div 4x - (-2x)^3 \quad (6)$$

Question 9 If $a = -1$; $b = \frac{1}{2}$ and $c = 2$, find the value of the following (show all steps of working).

$$9.1 \quad abc \quad (1)$$

$$9.2 \quad c - a - (4b + c) \quad (2)$$

$$9.3 \quad -2a^c + 2ac \div b \quad (3)$$

Question 10 Solve for .

10.1 (1)

10.2 (1)

10.3 (1)

10.4 (1)

10.5 (1)