

**MATHEMATICS**

**GRADE 7 TEST**

**TERM 1**

**MARKS: 100 TIME: 2 HOURS**

**SCHOOL: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**LEARNER: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**EXAMINER :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**MODERATOR :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**INSTRUCTIONS**

1. Show ALL calculations clearly.

2. Round off ALL the final answers to TWO decimal places, unless stated otherwise.

3. Units of measurement MUST be indicated, where applicable.

4. Diagrams are NOT necessarily drawn to scale, unless stated otherwise.

5. Write neatly and legibly.

**Question 1**

Choose the correct answer for each of the following. Write only the question number and the letter of your choice:

1.1 Which of the following is not a prime number?

a) 26

b) 34

c) 1

d) 39 (1)

1.2 What is the value of in the following number sentence?

6 001 - = 6 001

a) 6 001

b) 1

c) 10

d) None of the above (1)

1.3 If one American dollar ($) has the same value as R13.75, then how many dollars will you get for R550.00?

a) $0,03

b) $7 562.50

c) $40

d) None of the above (1)

1.4 Which one of the following is the cube root notation for 6 × 6 × 6?

a)

b)

c)

d) (1)

1.5 Which of the following symbols will be correct for \_\_\_\_\_\_\_\_\_ ?

a) >

b) <

c) =

d) None of the above (1)

1.6 If line AB ⊥ CD, then what would the angle be equal to?

a) 270ᵒ

b) 180ᵒ

c) 360ᵒ

d) 90ᵒ (1)

1.7 What would we call the type of angle at which an aeroplane takes off from the runway?

a) Reflex angle

b) Obtuse angle

c) Acute angle

d) Straight angle (1)

1.8 The sum of the angles in a scalene triangle would be equal to:

a) 90ᵒ

b) 180ᵒ

c) 270ᵒ

d) 360ᵒ (1)

1.9 In ΔABC, AB = 10cm, BC = 10cm and AC = 100mm. What would be the size of ?

a) 45ᵒ

b) 90ᵒ

c) 60ᵒ

d) 270ᵒ (1)

1.10 A shape which has five sides is called a:

a) Pentagon

b) Heptagon

c) Hexagon

d) Fivagon (1)

**[10]**

**Question 2**

2.1 Round the number 37 off to:

2.1.1 The nearest five (1)

2.1.2 The nearest ten (1)

2.2 Rewrite and complete the following by using either **>** ; **<** ; or **=**.

2.2.1 248 000 002 \_\_\_\_\_\_\_\_ 248 001 001 (2)

2.2.2 2 600 ÷ 10 \_\_\_\_\_\_\_\_\_\_ 26 000 ÷ 100 (2)

2.3 A box containing dozen eggs, is shared by 3 people in the ratio of 1 : 2 : 3. How many eggs did each person get?

(4)

2.4 In a certain school, the learner : teacher ratio is 31 : 1. If there are 24 teachers at the school, how many learners attend this school?

(3)

2.5 For his Mathematics test, Richard got marks and for his Science test he got marks. For which test did he achieve the highest result? Show your calculations.

(4)

2.6 The company which makes a popular brand of cool drink, sells 340mℓ cans of their product for R8.50 per can. They also sell in 2ℓ bottles at R14.99 each.

2.6.1 What is the cost/liter of each of these products? (4)

2.6.2 Calculate how much more profit per litre they make on the 340mℓ cans. (2)

2.6.3 Calculate this as a % profit. (3)

**[26]**

**Question 3**

3.1 Rewrite and complete the following using either **>** ; **<** ; or **=**.

3.1.1 \_\_\_\_\_\_\_\_\_\_ (2)

3.1.2 \_\_\_\_\_\_\_\_\_\_ (2)

3.1.3 \_\_\_\_\_\_\_\_\_ (2)

3.2 Write the following in expanded notation:

3.2.1 (2)

3.2.2 (2)

3.3 Calculate each of the following:

3.3.1 - (2)

3.3.2 × 0 + 10 (2)

3.3.3 × (2)

3.3.4 (2)

**[18]**

**Question 4**

4.1.1 Draw a ΔABC with the base line AB = 50mm, the hypotenuse AC = 70mm and = 25ᵒ.

(4)

4.1.2 Measure line BC in millimetres. (2)

4.1.3 Measure . (2)

4.1.4 What type of angle is ? (2)

4.1.5 Name the type of triangle you have drawn. (2)

4.2.1 Construct a circle with a diameter of 60mm. (3)

4.2.2 What do we call the outside line that forms the shape? (1)

4.2.3 Draw a chord at any position on your circle. (2)

**[18]**

**Question 5**

5.1 Solve for the:

5.1.1 Missing side and (2)

5.1.2 Missing angles in the following triangle. Give reasons for your answers. (4)



5.2 Name one difference between the properties of each of the following:

5.2.1 A rectangle and a parallelogram. (2)

5.2.2 A rhombus and a square. (2)

5.3 The piece of ground which Lerato bought to build her house on, has the following shape:



5.3.1 What is this shape called? (2)

5.3.2 Calculate the length of fencing she would need to fence her whole property. (Ignore any gates.) Give reasons for your answer.

(5)

5.3.3 If + = 180ᵒ, then determine the size of + . Give reasons for your calculations.

(3)

5.4 Look at the circle shown below and answer the questions that follow:



5.4.1 What do we call the unshaded portion of the circle? (1)

5.4.2 Determine the length of AC. Explain your reason. (2)

5.4.3 Determine the length of BD. Explain your reason. (2)

5.5 In the triangles shown below:



5.5.1 Is ΔABC III ΔPQR or is ΔABC ≡ ΔPQR? (1)

5.5.2 State two reasons for your choice above. (2)

**[28]**

**Total: 100 marks**

**MATHEMATICS**

**GRADE 7 TEST**

**TERM 1**

**MEMORANDUM**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Solution** | **Explanation** | **Marks** |
| 1.1 | c | 1 mark each = 10 | (10) |
| 1.2 | d |
| 1.3 | c |
| 1.4 | b |
| 1.5 | a |
| 1.6 | d |
| 1.7 | c |
| 1.8 | b |
| 1.9 | c |
| 1.10 | a |
| 2.1.1 | 35 | 1 mark each = 2 | (2) |
| 2.1.2 | 40 |
| 2.2.1 | 248 000 002 > 248 001 001 | Answer = 2 | (2) |
| 2.2.2 | 2 600 ÷ 10 = 26 00 ÷ 100 | Answer = 2 | (2) |
| 2.3 | |  |  |  |  | | --- | --- | --- | --- | |  | 1 : 2 : 3 | = | 6 | | ∴ | Person 1 | = | × 30 | |  |  | = | 5 eggs | | ∴ | Person 2 | = | × 30 | |  |  | = | 10 eggs | | ∴ | Person 3 | = | × 30 | |  |  | = | 15 eggs | | Add = 1  Uses 30 = 1  Method = 1  Answer = 1 | (4) |
| 2.4 | |  |  |  | | --- | --- | --- | | Learners | = | 24 × 31 | |  | = | 744 | | Method = 2  Answer = 1 | (3) |
| 2.5 | |  |  |  | | --- | --- | --- | | Maths | = | × 100 | |  | = | 60% | | Science | = | × 100 | |  | = | 57% |   ∴ Maths Higher | Conv. To % = 2  Answer = 1  Conclusion = 1 | (4) |
| 2.6.1 | |  |  |  | | --- | --- | --- | | 340mℓ can | = | × R8.50 | |  | = | R25.00/litre | | 2ℓ bottles | = | × R14.99 | |  | = | R7.50/litre | | Method = 1  Answer = 1  Method = 1  Answer = 1 | (4) |

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Solution** | **Explanation** | **Marks** |
| 2.6.2 | |  |  |  | | --- | --- | --- | | More profit | = | R25.00 - R7.50 | |  | = | R17.50/litre | | Method = 1  Answer = 1 | (2) |
| 2.6.3 | |  |  |  |  | | --- | --- | --- | --- | | ∴ | % profit | = | × 100 | |  |  | = | 205,9% | | Method = 2  Answer = 1 | (3) |
| 3.1.1 | > | Answer = 2 | (2) |
| 3.1.2 | = | Answer = 2 | (2) |
| 3.1.3 | = | Answer = 2 | (2) |
| 3.2.1 | 5 × 5 × 5 | Answer = 2 | (2) |
| 3.2.2 | 12 × 12 | Answer = 2 | (2) |
| 3.3.1 | |  |  | | --- | --- | |  | - | | = | 81 - 9 | | = | 72 | | Answer = 1  Answer = 1 | (2) |
| 3.3.2 | |  |  | | --- | --- | |  | × 0 + 10 | | = | 0 + 10 | | = | 10 | | Answer = 1  Answer = 1 | (2) |
| 3.3.3 | |  |  | | --- | --- | |  | - | | = |  | | = | 49 | | Method = 1  Answer = 1 | (2) |
| 3.3.4 | |  |  | | --- | --- | |  |  | | = |  | | = |  | | = | 8 | | Method = 1  Answer = 1 | (2) |
| 4.1.1 |  | AB = 50mm = 1  AC = 70mm = 1  = 25ᵒ = 1  Corr. Overall = 1 | (4) |
| 4.1.2 | BC = 33mm (accept 32 - 34) | Answer = 2 | (2) |
| 4.1.3 | = 116ᵒ (accept 115ᵒ - 117ᵒ) | Answer = 2 | (2) |
| 4.1.4 | Obtuse angle | Answer = 2 | (2) |
| 4.1.5 | Scalene triangle | Answer = 2 | (2) |
| 4.2.1 | Circle with radius = 30mm | Corr. Radius = 2  Neatly drawn = 1 | (3) |
| 4.2.2 | The circumference | Answer = 1 | (1) |

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Solution** | **Explanation** | **Marks** |
| 4.2.3 | Chord drawn correctly. | Chord shown correctly = 2 | (2) |
| 5.1.1 | AB = AC = 5cm (given) | Answer = 1  Reason = 1 | (2) |
| 5.1.2 | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  | = |  | (Isosc. Δ) | | But | + | = | 90ᵒ | Right angled Δ ∠’s = 180ᵒ) | | ∴ |  | = | 45ᵒ |  | | ∴ |  | = | 45ᵒ |  | | Statement + Reason = 1  Two reasons = 2  Answer = 1 | (4) |
| 5.2.1 | All angles of a rectangle are 90ᵒ. Not so with a ∥m. | Answer = 2 | (2) |
| 5.2.2 | Same as 5.2.1 | Answer = 2 | (2) |
| 5.3.1 | A Parallelogram | Answer = 2 | (2) |
| 5.3.2 | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Length: | SR | = | PQ = 17m | (Opp sides of ∥m) | |  | PS | = | QR = 32m | (Opp sides of ∥m) | | ∴ Fence |  | = | 17 + 17 + 32 + 32 |  | |  |  | = | 98m |  | | Answer + Reason = 2  Answer + Reason = 2  Answer = 1 | (5) |
| 5.3.3 | |  |  |  |  | | --- | --- | --- | --- | | + | = | 360ᵒ - 180ᵒ |  | |  | = | 180ᵒ | (∠’s of ∥m = 360ᵒ) | | Method = 2  Reason = 1 | (3) |
| 5.4.1 | A wedge | Answer = 1 | (1) |
| 5.4.2 | |  |  |  | | --- | --- | --- | | AC | = | 10cm | | (Diam | = | 2 × radius) | | Answer = 1  Reason = 1 | (2) |
| 5.4.3 | |  |  |  | | --- | --- | --- | | BD | = | 5cm | | (BD | = | BC both are radii) | | Answer = 1  Reason = 1 | (2) |
| 5.5.1 | ΔABC ≡ ΔPQR | Answer = 1 | (1) |
| 5.5.2 | Respective sides all equal.  Respective angles all equal. | Reason = 1  Reason = 1 | (2) |
|  |  | **Total: 100 marks** | |

**Cognitive Level Summary:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Question** | **Knowledge** | **Routine Procedures** | **Complex Procedures** | **Problem Solving** |
| **1.1** | 1 |  |  |  |
| **1.2** | 1 |  |  |  |
| **1.3** | 1 |  |  |  |
| **1.4** | 1 |  |  |  |
| **1.5** | 1 |  |  |  |
| **1.6** | 1 |  |  |  |
| **1.7** | 1 |  |  |  |
| **1.8** | 1 |  |  |  |
| **1.9** | 1 |  |  |  |
| **1.10** | 1 |  |  |  |
| **2.1.1** | 1 |  |  |  |
| **2.1.2** | 1 |  |  |  |
| **2.2.1** | 2 |  |  |  |
| **2.2.2** | 2 |  |  |  |
| **2.3** |  |  | 4 |  |
| **2.4** |  |  |  | 3 |
| **2.5** |  |  |  | 4 |
| **2.6.1** |  |  | 4 |  |
| **2.6.2** |  | 2 |  |  |
| **2.6.3** |  |  |  | 3 |
| **3.1.1** | 2 |  |  |  |
| **3.1.2** | 2 |  |  |  |
| **3.1.3** |  | 2 |  |  |
| **3.2.1** |  | 2 |  |  |
| **3.2.2** |  | 2 |  |  |
| **3.3.1** |  | 2 |  |  |
| **3.3.2** |  | 2 |  |  |
| **3.3.3** |  |  | 2 |  |
| **3.3.4** |  |  | 2 |  |
| **4.1.1** |  | 4 |  |  |
| **4.1.2** |  | 2 |  |  |
| **4.1.3** |  | 2 |  |  |
| **4.1.4** |  | 2 |  |  |
| **4.1.5** |  | 2 |  |  |
| **4.2.1** |  | 3 |  |  |
| **4.2.2** | 1 |  |  |  |
| **4.2.3** | 2 |  |  |  |
| **5.1.1** |  | 2 |  |  |
| **5.1.2** |  | 4 |  |  |
| **5.2.1** |  | 2 |  |  |
| **5.2.2** |  | 2 |  |  |
| **5.3.1** |  | 2 |  |  |
| **5.3.2** |  |  | 5 |  |
| **5.3.3** |  |  | 3 |  |
| **5.4.1** | 1 |  |  |  |
| **5.4.2** |  | 2 |  |  |
| **5.4.3** |  | 2 |  |  |
| **5.5.1** | 1 |  |  |  |
| **5.5.2** |  | 2 |  |  |
| **Total** | **25** | **45** | **20** | **10** |
| **%** | **25%** | **45%** | **20%** | **10%** |