

**GRADE 8 MATHEMATICS CYCLE TEST**

**TERM 1**

**TIME: 1 HOUR MARKS: 60**

**INSTRUCTIONS:**

1. Answer ALL questions
2. Round off to 2 decimal places where applicable
3. CALCULATORS MAY NOT BE USED
4. Show all necessary steps in your working unless otherwise stated.
5. When answering questions, apply your knowledge, skills and insight.
6. Number the answers correctly according to the numbering system used in this question paper.
7. Write neatly and legibly

**Question 1 [7 Marks]**

(a) List the set of all the factors of 16 (1)

(b) Which number is both a factor and a multiple of 15? (1)

(c) Which of the following: 36, 18, 6, 3 and 8

i) are factors of 12? (1)

ii) are multiples of 12? (1)

(d) List all the factors of 24 which are prime numbers (1)

(e) List the four lowest multiples of 60 (1)

(f) List the factors of 60 which are perfect squares (1)

**Question 2 [8 Marks]**

Use the dimensions of the following sporting fields to answer the following questions.

Show your calculations.

Hockey field 96m by 55m

Netball court 30,5m by 15,25m

Tennis court 23,77m by 10,97m

(a) Calculate the perimeter of a hockey field in km (2)

(b) Calculate the area of a tennis court in km2 (2)

(c) In an PT lesson, Coach tells Simone to run 3 times around the hockey field and

Chelsea to run 10 times around the netball court. Which girl runs the furthest?

Show all your calculations (4)

**Question 3 [2 Marks]**

Complete the tables below as instructed.

|  |  |  |
| --- | --- | --- |
| **Common fraction** | **Write as a decimal fraction** | **Write as a percentage** |
|  | a) | b) |

**Question 4 [6 Marks]**

(a) In a class of 15 people, 20% are boys. How many girls are there? (2)

### (b) What percent of 72 is 9?

(4)

**Question 5 [8 Marks]**

Calculate the following

(a) ()2 – ()2  (1)

(b) +  (1)

(c)  (1)

(d)  (1)

(e)  (1)

(f) 1002 x  (1)

(g)  + + 52 (1)

(h)  (1)

**Question 6 [4 Marks]**

Use the ladder method to express 294 as a product of it`s prime factors.

**Question 7 [14 marks]**

Fill in the answers without the use of a calculator (show calculations)

(a) 7 × (15 + 5) = (2)

(b)  = (2)

(c) 25 - 48 ÷ 6 + 12 × 2 (5)

(d) 78 - [5 + 3 of (25 - 2 × 10)] (5)

**Question 8 [ 11marks]**

1. Simplify the expression 4x2 + 3x( -9x + 6 ) (5)

2. Simpily the expression 5m2n3 – ( 6mn -4m2n3 +3) + 6 (6)



**Memorandum**

**Question 1 [7 Marks]**

(a) F16 = {1,2,4,8,16} (1)

(b) 15 (1)

(c)

(i) {3; 6} (1)

(ii) 36 (1)

(d) { 2;3}

(e) ( 60; 120 ; 180 ; 240} (1)

(f) ( 4) (1)

(1)

**[7]**

**Question 2 [8 Marks]**

1. P = 96 + 55 + 96 + 55 =302 m√ = 0,302km ≈0,3km √ (2)

(b) A = 23,77 x 10,97 km2 = 260,7569 km2 √ ≈260,76 km2√ (2)

(c) Simone: 3 x 302 m = 906m√

Chelsea : 10 x [2(30,5) + 2(15,25)] √ = 10( 61 + 30.5) √ = 10 ( 91.5) = 915 m√

Chelsea runs the furthest. (4)  **[8]**

**Question 3 [2Marks]**

|  |  |  |
| --- | --- | --- |
| **Write as a common fraction in its simplest form** | **Write as a decimal fraction** | **Write as a percentage** |
|  | a) 0,8 | b) 80 % |

**[2]**

**Question 4 [6 Marks]**

(a) 1/5 of15 = 3 boys√

1. – 3 = 17 girls. √ (2)

(b) n.9 = 72√

n = 9 ÷72

= 0,125√

n = 12,5 %√

12,5 % of 72 is 9 √ (4)

**[6]**

**Question 5[ 8 Marks]**

Calculate the following

(a)()2 – ()= (5)2 – (2) = 25 – 2 = 23 √ (1)

(b) +  = 3 + 7 = 10 √ (1)

(C) = 12/2 = 6 √ (1)

(e) = 0,2 √ (1)

(f) 1002 x 

= 10 000 X 10 = 100 000 √ (1)

(g) + + 52 = 5 + 5 + 25 √= 35 √ (2)

(h)

=  = √= 3,3√ (1)

**Question 6 [4 Marks]**

|  |  |
| --- | --- |
| 2 | 294 |
| 3 | 147 |
| 7 | 49 |
| 7 | 7 |
|  | 1 |
|  |  |

2 X 3 X 7 X 7 = 294

**Question 7 [14 marks]**

Fill in the answers without the use of a calculator (show calculations)

(a) 7 × (15 + 5)

= 7 × 20√

= 140√

(b)  =  √ = + 4√

(c) 25 - 48 ÷ 6 + 12 × 2

= 25 - 8 + 12 × 2√

= 25 - 8 + 24 √

= 17 + 24√

= 41√

(d) 78 - [5 + 3 of (25 - 2 × 10)]

= 78 - [5 + 3 of (25 - 20)]√

= 78 - [5 + 3 of 5]√

= 78 - [5 + 15] √

= 78 – 20 √

= 58 √

**Question 8[11 marks]**

8.1 4x2 + 3x(-9x + 6)

= 4x2 +3x( -9x) + 3x( 6)√

= 4x2 -27x2 + 18x √√

= -23x2 + 18x √√ (5)

8.2 5m2n3 – ( 6mn -4m2n3 +3) + 6

= 5m2n3 – 6mn + 4m2n3 -3 + 6 √√√

= (5+4)m2n3 – 6mn (-3 + 6) √

= 9 m2n3 – 6mn -3 √√ (6)