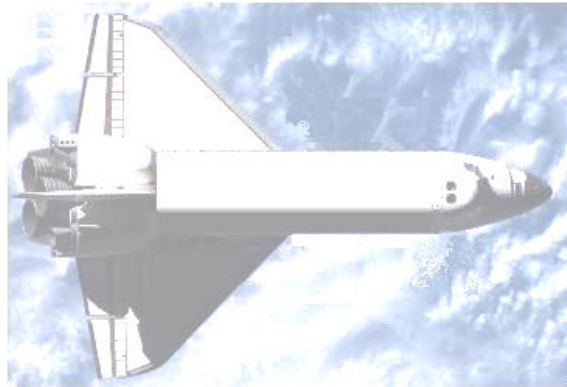


Grade 10 Diagnostic Test

The material is based on the Grade 9 syllabus and should ideally be taken at the beginning of the grade 10 year.



- Give yourself approximately 40 minutes to complete this test.
- For each question select one answer.
- A calculator may be used.

Section 1

Numbers, Operations, Relationships, Patterns, Functions and Algebra

1 Simplify $(a + 3b) - (-a - 3b - c)$

- A $2a - c$ B $-c$ C $2a + 6b + c$ D $6b + c$

2 What must be added to $2x^2 - 4x + 1$ to obtain $x^2 - 4$?

- A $-x^2 + 4x - 5$ B $x^2 - 4x + 5$ C $x^2 - 4x - 3$ D $-x^2 - 4x - 3$

3 You pay € 16.52 for a dinner in Paris.
The rate of exchange is:
0.0988 Euros to the Rand.



How much did your meal cost in Rands?

- A R163 B R176.21 C R157.21 D R167.21

4 Solve for x : $2(x - 3) - (6x - 9) = 0$

- A $x = \frac{-3}{4}$ B $x = -3\frac{3}{4}$ C $x = 3\frac{3}{4}$ D $x = \frac{3}{4}$

5 Solve for x : $\frac{2x+3}{5} - \frac{4-x}{4} = \frac{2x-1}{6} - 1\frac{1}{2}$

- A $x = -4$ B $x = 6\frac{10}{11}$ C $x = -2\frac{6}{59}$ D $x = 3$

6 Which of the following expressions will always be a natural number if a and b are natural numbers?

- A $a - b$ B $a + b$ C \sqrt{ab} D $\frac{1}{ab}$

7



How many seconds are there in one week?

Give your answer in scientific notation, where the number in standard form is correct to three decimal places.



- A $8.640 \times 10^4 \text{ sec}$ B $0.605 \times 10^6 \text{ sec}$ C $2.520 \times 10^4 \text{ sec}$ D $6.048 \times 10^5 \text{ sec}$

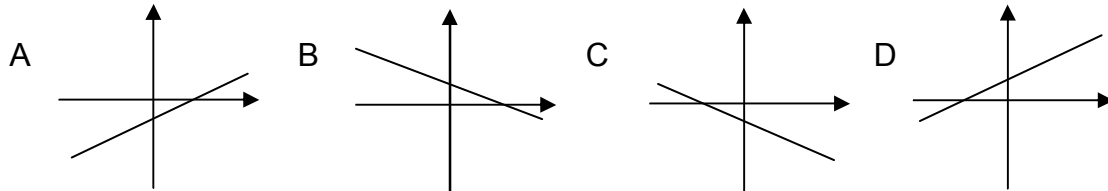
8 Find the amount if a total of R50000 is invested for 4 years at 9.2% compound interest p.a. and the interest is compounded semi-annually.

- A R71098.52 B R59854.49 C R71651.20 D R68400

9 Factorise completely: $1 - 16x^4$

- A $(1 - 2x^2)(1 + 8x^2)$ B $(1 + 8x^2)(1 - 8x^2)$ C $(1 - 4x^2)(1 + 4x^2)$ D $(1 - 2x)(1 + 2x)(1 + 4x^2)$

10 Which of the following graphs best represents the function: $y = -\frac{1}{2}x - 1$?



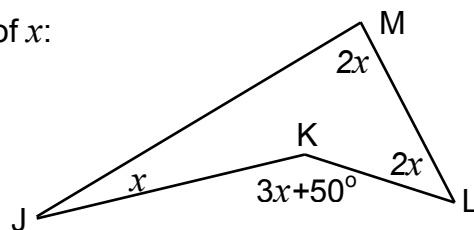
Section 2

Space, Shape, Measuring, Data Handling

11 The angles in a triangle are in the ratio 4:11:3. What is the size of the largest angle?

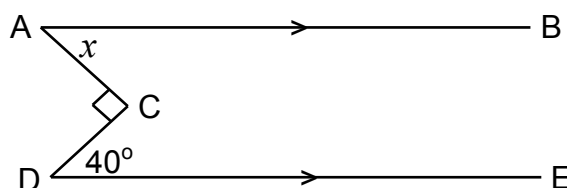
- A 70° B 110° C 140° D 117°

12 Find the value of x :



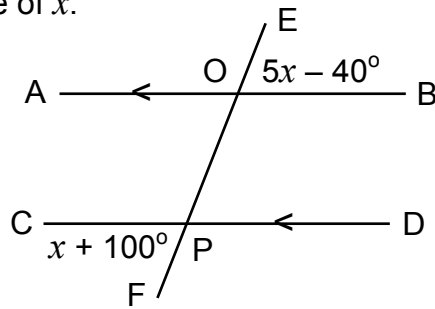
- A 25° B 50° C 36° D 38.75°

13 Find the value of x in the diagram. (Hint, draw another parallel line in the figure).



- A 40° B 45° C 50° D 55°

- 14 Calculate the value of x :

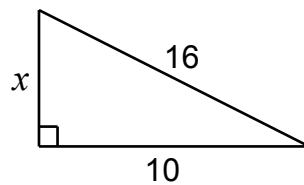


- A 40° B 10° C 20° D 35°

- 15 What type of quadrilateral is symmetrical about only one diagonal?

- A square B rhombus C kite D parallelogram

- 16 Calculate the length of x . Leave your answer in surd form.



- A 6 units B $\sqrt{6}$ units C $2\sqrt{39}$ units D $2\sqrt{89}$ units

- 17 What type of triangle is $\triangle PQR$ if $p = 2.5\text{m}$, $q = 6\text{m}$ and $r = 6.5\text{m}$?

- A right angled B isosceles C equilateral D obtuse angled

- 18 A cylinder has a height of 3m and a radius of 1200mm. Find the total surface area in terms of π . (Both ends are closed)

- A $10\frac{2}{25}\pi\text{m}^2$ B $9\frac{2}{25}\pi\text{m}^2$ C $9\frac{3}{5}\pi\text{m}^2$ D $10\frac{4}{25}\pi\text{m}^2$

- 19 You put the letters of the word PROBABILITY into a box and draw one letter at random. What is the probability that the letter will be a B?



- A $\frac{1}{11}$ B $\frac{2}{11}$ C $\frac{3}{11}$ D $\frac{9}{11}$

- 20 You roll two dice. What is the probability of scoring a double? For example, two one's or two 2's etc.



- A 2 B $\frac{1}{36}$ C $\frac{1}{6}$ D $\frac{1}{2}$