SASTRI COLLEGE
DEPARTMENT OF MATHEMATICS
NOVEMBER EXAMINATION 2018
GRADE 8 MATHEMATICS
30 OCTOBER 2018

EXAMINER: K. Ramklown

DURATION: 2 Hours

MODERATOR: I. Ramklown

MARKS : 120

Instructions:

1. This paper consists of **8** printed pages and **10** questions.

2. The use of a calculator is **permitted only for certain questions.**

3. Answer ALL questions.

4. Write neatly and legibly.

5. Rule off after each question.

6. Show all working details.

7. Round off all answers to **2 decimal places**, where necessary.

Question 1 [6]

Four options are provided as possible answers to the following questions. Each answer has only ONE correct answer. Write down only the correct letter next to the question number. Eg. 1.9 A

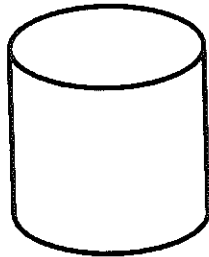1.1 The only prime number which is even is:

A) 8

B) 2

C) 16

D) 44

(1)

1.2 $2^2 - 3 + 6 \div 2$ is equal to

A) 4

B) 0

C) $\frac{7}{2}$

D) 9

(1)

1.3 The name given to the shape below is a

A) sphere

B) octagon

C) cylinder

D) rectangular prism

(1)

1.4 A rectangle has a length of 20cm and a breadth of 10cm. The perimeter of the rectangle will be

A) 200

B) 60

C) 30

D) 100

(1)

1.5 Angles which add up to 180° are called _____ angles.

A) complementary

B) supplementary

C) corresponding

D) vertically opposite

1.6 A certain number is doubled and increased by twenty. The answer is ten less than three times the number. Determine the number.

A) 30

B) 17

C) 2

D) 6

(1)

Question 2   [26]

The use of the calculator is **NOT** permitted for this question. If there is any evidence of the use of a calculator, a mark of zero will be awarded for the question.

2.1 Simplify each the following:

2.1.1 $\dfrac{-5-8-11}{(-2)(3)(-4)}$ **(2)**

2.1.2 $\sqrt{\dfrac{9}{4}} \times \sqrt[3]{0,027}$ **(3)**

2.2.   Use prime factorisation to answer the following questions.

2.2.1   HCF of 12 and 40   **(3)**

2.2.2 $\sqrt{1296}$ **(3)**

2.3 Simplify each of the following:

2.3.1 $\dfrac{5}{4} - 3\dfrac{1}{2}$ **(2)**

2.3.2 $\dfrac{6}{7} \div \dfrac{42}{49} \times 2$ **(2)**

2.3.3 $25\% \ of \ R3500$ **(2)**

2.4 At the beginning of the month Thembakazi's bank balance was R28753,79. She made the following payments: R329 , R789,23 and R854,45. A deposit of R340 was also made. What is the closing balance of the account?   **(3)**

2.5 Wandile and Fahima invest $R4500$, in a business, in the ratio 1 : 2. Calculate the amount that Wandile invested.   **(2)**

2.6 Study the table below and answer the questions which follow:

π	$\dfrac{2}{7}$	$\sqrt{-3}$	0,26	$\sqrt[3]{-64}$	-12	7	$\dfrac{25}{4}$	0

Write down:

2.6.1   A non-real number   **(1)**

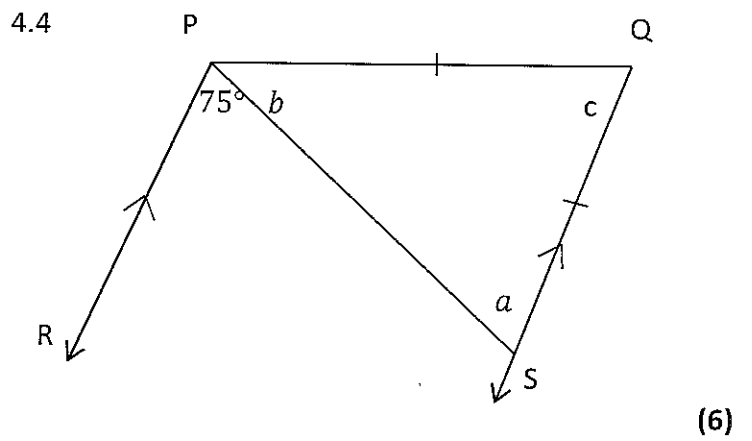2.6.2   A prime number   **(1)**

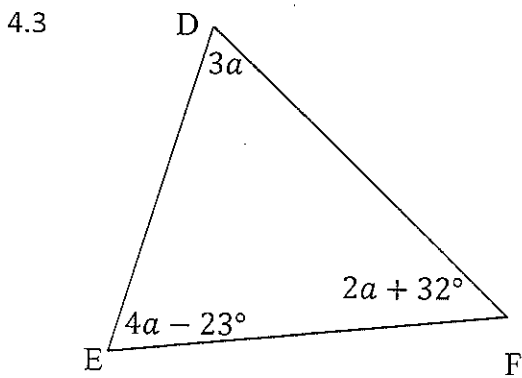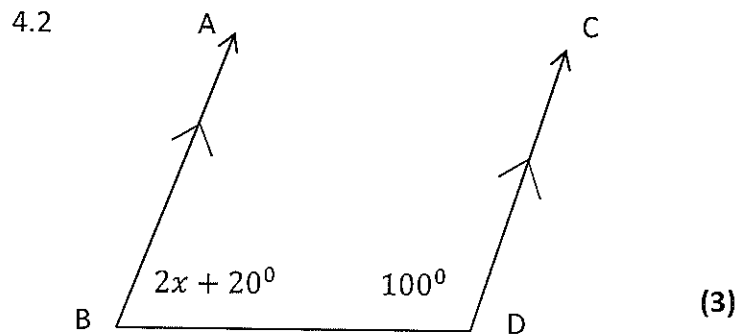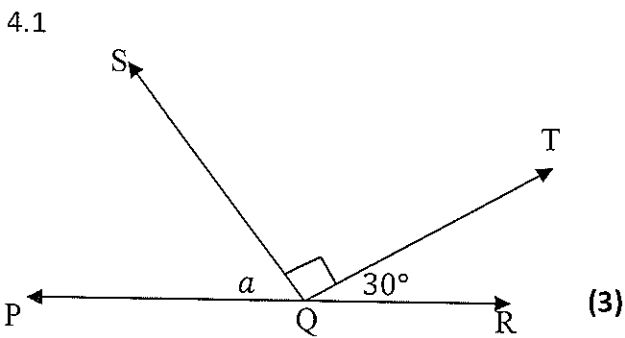2.6.3   An irrational number   **(1)**

2.6.4   A number which is an integer and is divisible by 4.   **(1)**

Question 3 [34]

3.1 Consider the expression: $9a^2 - 2a^6 + 3a + 2 - 4a^5$

    3.1.1 Write down the degree of the expression. **(1)**

    3.1.2 Give the co-efficient of the last term. **(1)**

    3.1.3 Write down the constant term. **(1)**

    3.1.4 Calculate the value of the expression if $a = 0$. **(1)**

3.2   ADD:
$$2x - 4xy - 6y$$
$$\underline{6x + 10xy + 6y}$$ **(2)**

3.3   From $2a^2 + 3b, subtract\ 6a^2 - 12b$ **(2)**

3.4 Simplify each of the following:

    3.4.1 $4x + 3y - 7x + 10y - 2 + 7y + 6x$ **(3)**

    3.4.2 $2(a + 3) - 4(a - 2)$ **(3)**

    3.4.3 $\dfrac{20a^4 - 4a^3 + 6a}{2a}$ **(3)**

    3.4.4 $\sqrt{25x^4 - 16x^4}$ **(2)**

    3.4.5 $\sqrt{25x^4} - \sqrt{16x^4}$ **(2)**

3.5 Solve for x

    3.5.1 $2x = 3x - 5$ **(2)**

    3.5.2 $4(x - 1) = 2(x + 6)$ **(3)**

    3.5.3 $\dfrac{x}{2} = 4\dfrac{1}{2}$ **(2)**

    3.5.4 $3^x = 27$ **(2)**

3.6 Complete the number pattern below, in your answer book:

3.6.1   5 ;___ ; 15 ; 20 ; 25 ; ____ **(2)**
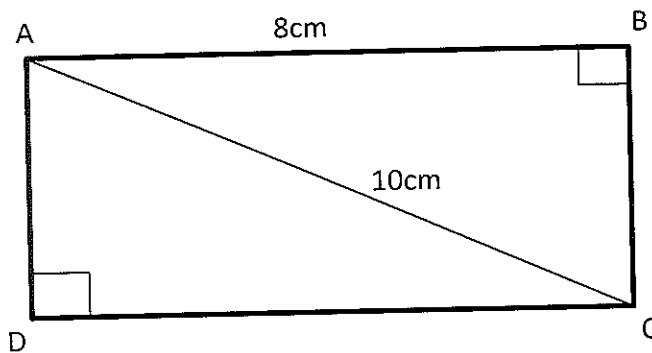
3.6.2   1 ; 8 ; 27 ;___ ; ____ **(2)**

Question 4   [21]

Calculate the size of the unknown angles marked with letters in each of the following figures. Provide REASONS for all your answers.
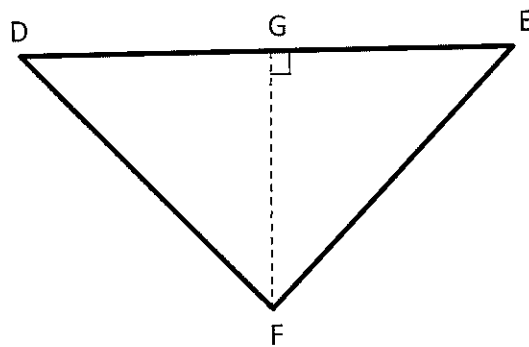
4.1

(3)

4.2

$2x + 20^0$ 100^0

(3)

4.3

$3a$

$2a + 32°$

$4a - 23°$

(3)

4.4

$75°$ b c

a

(6)

4.5

z

$37°$

y

$85°$ x

(6)
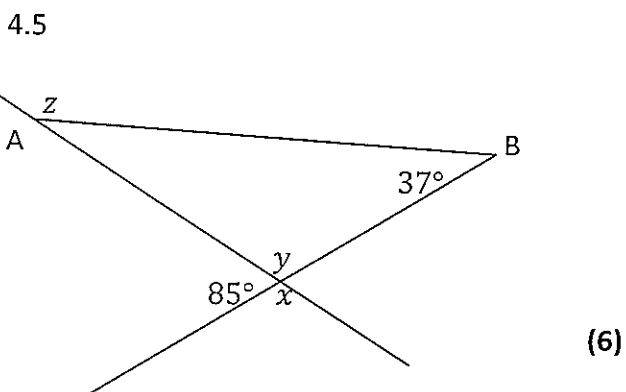
Question 5   [10]
5.1 Determine the **PERIMETER** of the figure below, if AC = 10 cm and AB = 8 cm.

A   8cm   B
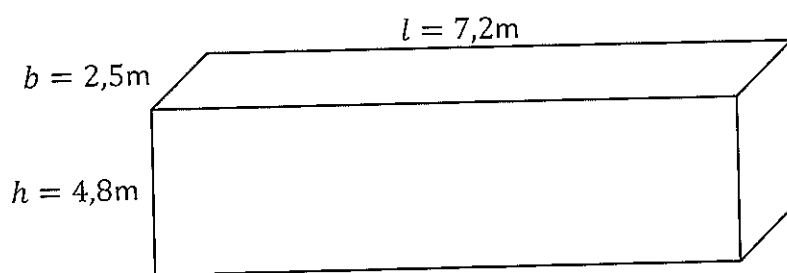
10cm

D   C

(4)

5.2 Calculate the **AREA** of the figure below, where DE = 12 units and GF = 9units.

D   G   E

F

(3)

5.3 Calculate the **TOTAL SURFACE AREA** of the following rectangular prism:

$l = 7,2$m

$b = 2,5$m

$h = 4,8$m

(3)

Question 6   [9]
Study the data below and answer the questions which follow:
The following data represents the height, in cm, of 9 learners in Grade 8 at Sastri College.

144	132	156
132	150	165
140	148	129

6.1 Draw an **ordered** stem and leaf plot.   (2)

6.2 Calculate the mean of the learner's height.   (2)

6.3 Write down the modal height   (1)

6.4 Calculate the range of the data.   (1)

6.5 Determine the median height.   (1)

6.6 Calculate the percentage of learners who have a height greater tham 145cm   (2)
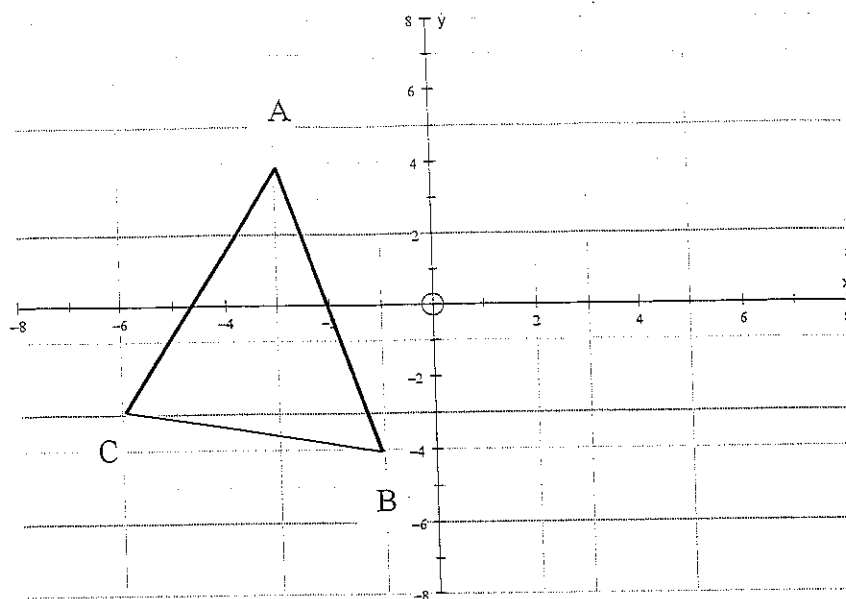

Question 7   [3]
A card is drawn from a deck of 52 playing cards, at random, and placed back afterwards.

Determine the probability of drawing:

7.1 a card which is a black jack.   (1)

7.2 a card which is an ace.   (1)

7.3 a card which is not a heart and a king.   (1)

Question 8 [3]
Study the diagram and answer the question.

REFLECT $\triangle ABC$ about the Y-axis and write down the co-ordinates of $\triangle A'B'C'$ in your answer book   (3)
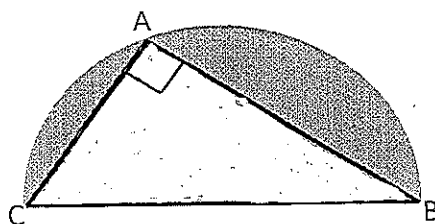
Question 9 [3]
The sides of a triangle are $3x - 5, x$ and $2x + 4$ units respectively. If the length of the third side is doubled, the perimeter will be 43 units. Determine the value of the lengths of each of the sides of the new triangle.   (3)

Question 10 [5]
Calculate the area of the shaded region in the figure below.

AB = 12cm
AC = 9cm

TOTAL = 120

USEFUL FORMULAE

$$P = 2(l + b)$$ $$SA = 2lb + 2lh + 2bh$$ $$A = \frac{1}{2}bh$$

$$A = lb$$ $$SA = 6x^2$$ $$A = \pi r^2$$

$$C = 2\pi r$$ $$V = lbh$$ $$V = x^3$$