

Name: _____ Class: _____

St. George Girls' High School

October 1998

YEARLY EXAMINATION

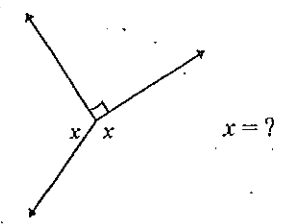
YEARS

MATHEMATICS

TIME ALLOWED: 75 MINUTES

Section A

Write your answers in the ANSWERS column.
You may do your working in the QUESTIONS column.

QUESTIONS	ANSWERS
1. Calculate $\frac{1.6^3 \times 3.05}{1.6^2 + 3.05^2}$ to 2 decimal places	
2. Find $12\frac{1}{4}\%$ of \$500	
3. Convert 126.5 m to km	
4. Simplify: $4a - (1 - a)$	
5. 	
6. Divide 160 metres in the ratio 2:3	
7. The median of 3, 7, 8, 4, 5, 'a' is 5.5. What is the value of 'a'?	

8. Solve: $\frac{3}{x} = \frac{4}{3}$

9. Simplify: $\frac{2x}{3} - \frac{x}{2}$

10. Choose the correct statement(s) about $\frac{2}{5}$

- a) greater than 35%
- b) equivalent to 0.4
- c) the same as 2.5
- d) less than $\frac{1}{3}$

11. Write down the product of a number n and 2 more than the number.

12. Simplify: $12x^9 + 3x^4$

13. In a Halloween brew there were 7 worms, 9 snakes and 4 lizards.

Find the percentage of snakes.

14. Simplify: $\sqrt[3]{64a^{27}}$

15. A pipe was cut across its diameter into 4 pieces in 12 minutes.
How many minutes at this rate would it take to cut the pipe into 6 pieces?

16. In a group of 40 people there were 28 teenagers and the rest adults.

What is the ratio of adults : teenagers?

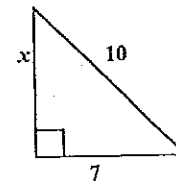
17. Simplify: $a - a^2 + 3a^2 - 2a$

18. Factorise: $9a - 18b$

19. Find the diameter of a circle if its circumference is 15 cm.
(Answer to 1 decimal place)

20. Solve: $\frac{2+x}{3} = 1$

21.



Find the value of x to 1 decimal place

22. Write a whole number in the box to make a fraction whose value is between 2 and 3

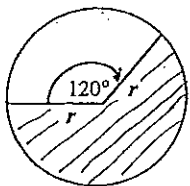
$\frac{17}{\square}$

$\square =$

23. Convert 300 m/min to km/hr

24. If $x\%$ of a number is y , write an expression for the number.

25.



The radius of the circle is r cm. Find an expression to represent the area of the shaded section of the circle.

26. If a scale drawing is 50 cm in length by 36 cm in width and the scale is 1:1500, find the real size of the width.

27. If a car was sold for \$20 000 at a loss of 15% of the cost price, what was the original cost of the car?

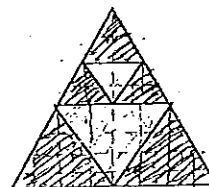
28.

TITANIC	49%
GREASE	35%
BEAUTY AND THE BEAST	7%

The table shows the percentage of people who voted for their favourite movie.

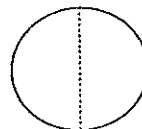
If 49 people chose Beauty and the Beast, how many people in the group selected, didn't pick a favourite movie from these three?

29.

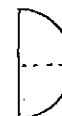


This pattern was used for a new floor for the gym at St. George. The shaded areas are red and the rest white. What fraction of the triangle is red?

30.



1st fold



2nd fold



3rd fold

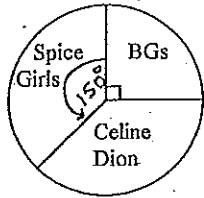
A circle is folded as shown above. When unfolded it opens up to a number of sectors. How many sectors are there?

Part B

Show all necessary working in the space provided.

QUESTION 1

a)



The graph shows the comparison between the number of fans of each pop star or group.

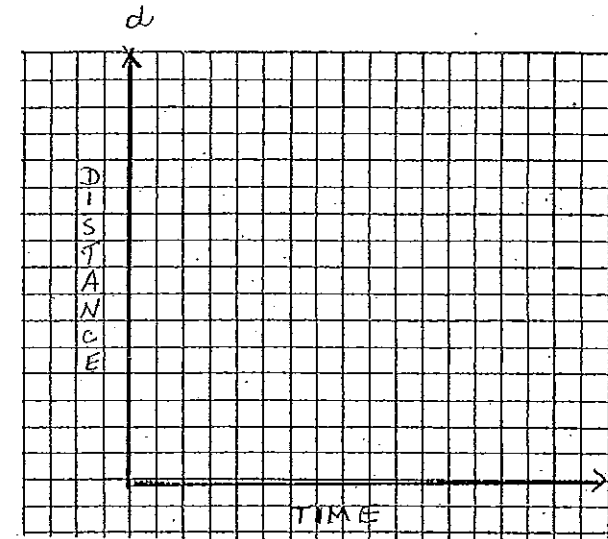
The sector for the BGs has an angle of 90° and for the SPICE GIRLS 150° .

- 1) Name the type of graph
- 2) If there were 10 000 SPICE GIRLS fans counted for this graph, how many CELINE DION fans?

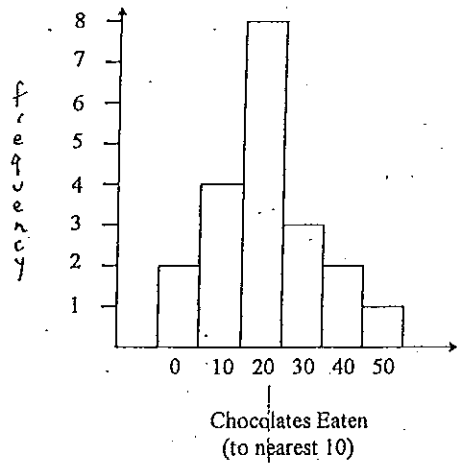
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- 3) Find the total number of fans represented by this graph.

- b) Mr Rush cycles 20 km at 5 km/hour, 20 km at 10 km/hour and 20 km at 16 km/hour. Draw a graph on the grid to represent Mr Rush's journey.



QUESTION 2



The frequency histogram represents the number of chocolates (to nearest 10) eaten by a group of chocoholics over a week.

- ii) How many people ate no chocolates for the week?
- iii) What percentage of people ate less than 20 chocolates?
- iv) What is: a) mode b) mean c) median?

i) Set up the frequency table using the histogram.

x	f	cf	fx

QUESTION 3

a) Factorise fully:

i) $4ab^2 - 2a^2b$

ii) $a(a+b) - b(a+b)$

b) Expand and simplify:

i) $3x(1-x) - (2+x)$

ii) $(2y+1)(3y-2)$

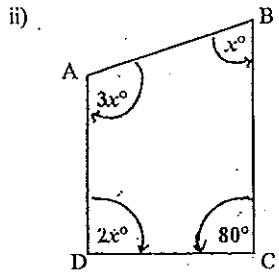
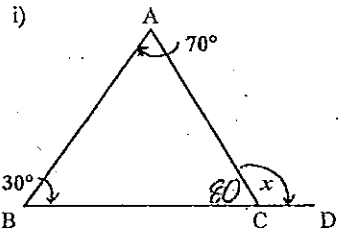
QUESTION 4

a) Solve: i) $3-2(x+1) = 5$

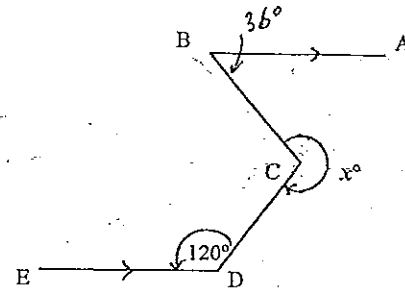
ii) $\frac{a}{4} = 7 - \frac{a}{3}$

Solve and graph on number line: i) $2-6x \geq 4$

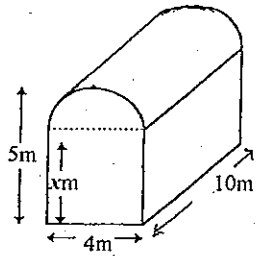
b) Find the value of x and give reasons.



iii)



QUESTION 5



The diagram represents a 10 metre long section of a train tunnel of height 5 metres and width 4 metres.

It consists of a half cylinder roof on top of a rectangular prism base.

4) If the tunnel is emptied at 5000 L per minute, how long will it take to empty it?

1) Find the value of x .

2) Find the area of the cross-section of the tunnel.

3) If this section of the tunnel was blocked off and filled with water, how many litres of water would be required to fill it?

$$[1000L = 1 m^3]$$