Grade 11 Essential
Mid Term Practice Exam

adapted from the Mb Education Distance Learning Resource

To complete this examination, you will need:
- pens/pencils (2 or 3 or each)
- blank paper
- scientific or graphing calculator (*not* smart phone)
- geometry set (including a ruler, a protractor) [provided at desk]
- Midterm Exam Resource Sheet (The Midterm Exam Resource Sheet must be handed in with the exam. You will receive your Midterm Exam Resource Sheet back from your tutor/marker with the next module that is submitted for marking.)

For Part C
- show all calculations and formulas
- include units where appropriate
- clearly state your final answer
- diagrams may not be drawn to scale

Part A: Multiple Choice (10 x 1 = 10 marks)

1. Nick invests $5000. *Approximately* how long will it take for the investment to double if the rate is 10% compounded annually?
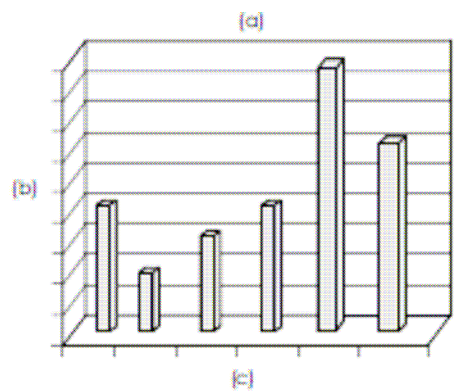
    a) 8 years   b) 7 years   c) 720 years   d) 7 months

2. If the volume of a prism is 30 m^3 , what is the volume of a pyramid with the same dimensions?

    a)   10 m^3 b)   15 m^3 c)   60 m^3 d)   90 m^3

3. Which axis is the qualitative axis?

         a ,   b, or   c

4. Which of the following is not a step in getting out of debt?
    a) Stop using your credit cards
    b) Consolidate your debts
    c) Do not tell anyone you are in debt
    d) Cash in some of your investments

5. How much is the volume of a rectangular prism changed when you double one dimension?

    a) The volume stays the same   b) The volume is multiplied by 4

    c) The volume is doubled   d) The volume is multiplied by 8

6. Which is the most cost-efficient way to pay for a big ticket item?

    a) buy now, pay later   b) installment buying
    c) personal loan   d) cash

7. The surface area of a sphere is 25 cm^2. Convert this to mm^2

    a) 2.5 mm^2 b) 2.5 mm^3 c) 0.25 mm^2 d) 2500 mm^2

8. Which type of credit should Robin use to pay for his university costs when he moves to Toronto to go to university?

    a) credit card   b) overdraft protection

    c) personal line of credit   d) consumer loan

9. Robyn invests **$4600** for eight years. The investment earns **5%** in simple interest. How much interest will Robyn earn on the investment?

    a) $1840   b) $184 000   c) $11 500   d) $115

10. The volume of a prism is 5184 in^3. What is the volume in cubic feet?

    a) 432 ft^3 b) 36 ft^3 c) 62,208 ft^3 d) 3 ft^3

Part B: Definitions (10 x 1 = 10 marks)

MATCH

Match each definition with the correct term from the list below. Write the correct term on the line below each definition. Terms are used only once. Not all terms have a definition provided.

bar graph	continuous	histogram	personal line of credit
buy now, pay later	credit	independent	prism
capacity	credit card	installment buying	pyramid
carrying charge	cylinder	installment price	referent
circle graph	dependent	interpolation	simple interest
composite	discrete	line graph	sphere
compound interest	extrapolation	low risk	surface area
cone	faces approach	net	volume
consumer loans	high risk	overdraft protection	

1. Data that can be sorted into well defined categories.

2. Purchasing by paying the taxes upfront but waiting to pay the cost of the item at a later time.

3. Calculate surface area by adding the area of each surface.

4. Investment whose interest rate does not vary much.

5. A 3-D object that has a polygon base and triangular sides that share a common vertex.

6. A graph that relates independent and dependent variables.

7. Credit given as a large amount of money, and you are charged interest on the entire amount.

8. In a relationship, the variable that is affected by the other.

9. A 3-D object that has two circular faces joined by a rectangular face that wraps around the circumference of the two circles.

10. Borrowing money with the promise to pay it back.

Part C: Long Answer

Show all formulas and calculations used to answer each question. Write your final answers rounded to the number of decimal places indicated in the questions. Include units where appropriate. Clearly state your final answer.

1. Jazz takes out a short-term loan of $7300 from her financial institution. She repays the loan 21 days later. If she pays $49.35 in interest charges, calculate the rate of interest she is charged. Write your answer as a percentage rounded to the nearest whole number. (3 marks)

2. Brandon has $100,000 to invest for a period of five years. Institution A offers him an interest rate of 7% compounded semi-annually. Institution B offers him an interest rate of 6.5% compounded monthly.

    a) Using the compound interest formula, calculate which institution offers Brandon a better return on his investment. (5 marks)

    b) How much more interest could be earned by investing in the institution that offers a better return? (1 mark)

3. Karen invests $12,000 for eight years. At the end of eight years, her investment is worth $24,000.

    a) Use the rule of 72 to *estimate* the interest rate Karen receives. (1 mark)

    b) Use the compound interest formula to determine the actual value of $12,000 compounded annually for eight years at the interest rate you found in part (a). (2 marks)

    c) Determine the difference between the actual value of the investment after eight years and the doubled value found with the rule of 72. (1 mark)

    d) Is the rate you found in part (a) approximately correct? Explain why. (2 marks)

5. Rita needs a loan from the bank to pay for a car that costs $14 000. If Rita pays $450.10 per month toward the loan, what are the *likely* interest rate and term of the loan? (2 marks)

6. List the three questions you should ask yourself when deciding whether to save money by paying cash now, or whether to use a sales promotion (buy now, pay later, or installment buying) to buy an expensive item like a computer. (3 marks)

7. On October 5th, Jayson uses a credit card to make a purchase for $163.16. The purchase appears on his monthly statement issued October 20th. Jayson doesn't pay for the purchase by the due date indicated on the October statement. His next monthly statement is issued November 20th. Calculate the interest he is charged for the purchase on his November statement. Assume his lending institution charges him an annual interest rate of 18.25%. Assume that he is charged interest from the date of purchase. (4 marks)

9. Daniela is buying a dining room set. The cash price of the dining room set is $2799 plus taxes. The installment terms are $100 down plus $90 per month for three years. The monthly payment includes taxes.

    a) Calculate the cash selling price of the dining room set. (2 marks)

   b) Calculate the installment price of the dining room set. (3 marks)

    c) Calculate the percent rate of the finance charge compared to the cash selling price.

10. Complete the table below by stating one advantage and one disadvantage for each type of credit listed. (2 marks)

	Advantage	Disadvantage
Overdraft (1 mark)		
Line of Credit (1 mark)		

3-D Geometry (26 marks)

1. Find the surface area of the object using a net. (3 marks)
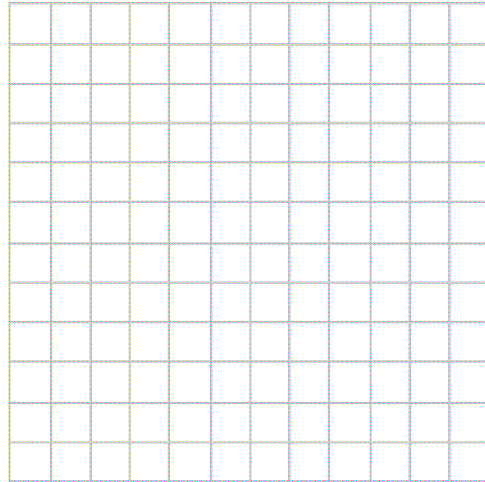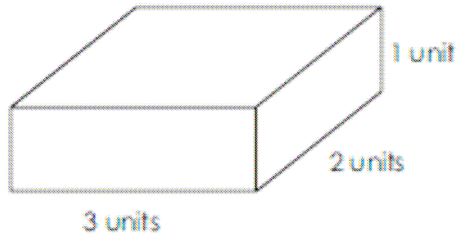

2. You have finished building a treehouse with a doorway (2 ft. wide and 3 ft. tall) and a window opening (1 ft. by 1 ft.). Now you would like to paint the outside, including the bottom. You have enough paint to cover 100 ft^2. Will you need more paint? Explain. (10 marks)
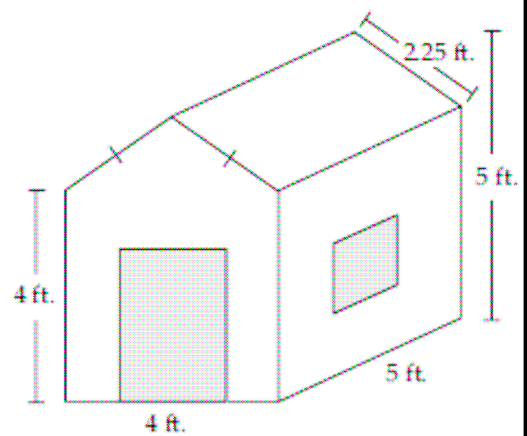
4. A cylindrical clay pot has a capacity of 2617 in^3. The side wall and the bottom of the pot are 1 inch thick, and the outside height of the pot is 1.5 feet.

    a) Calculate the outside diameter of the pot. Write your answer in inches rounded to one decimal place. (4 marks)

    b) Calculate the volume of water in the pot if it is filled to three inches below the top edge. Write your answer in litres, rounded to one decimal place.
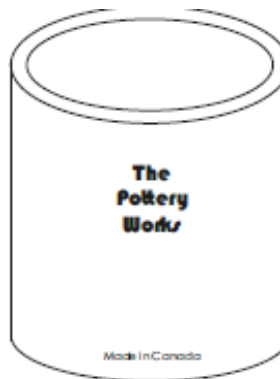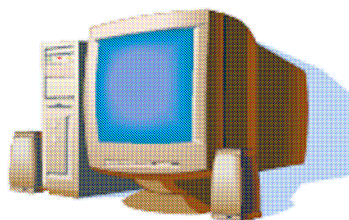
Note some conversion factors:

1 litre = 61 in^3; and 1 ft^3 = 28.3 L. (3 marks)

5. You are trying to find the surface area of your computer screen and you do not have any measuring tape or ruler. You decide to use a referent to measure the screen.

a) State what you would use as a referent. (1 mark)

b) Explain how you would use the referent to estimate the surface area of your computer screen. (2 marks)

Statistics (16 marks)

1.   Dakota is a member of the student council and is organizing the pizza lunch for all the council members. At the last meeting, the secretary surveyed everyone to find out what kind of pizza they like to eat. The following data was collected.
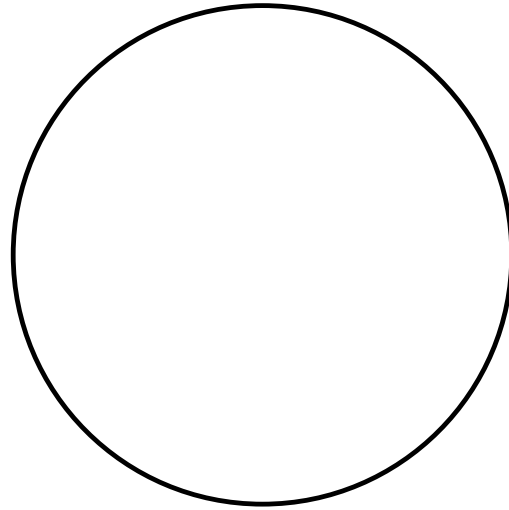
     Pepperoni—5
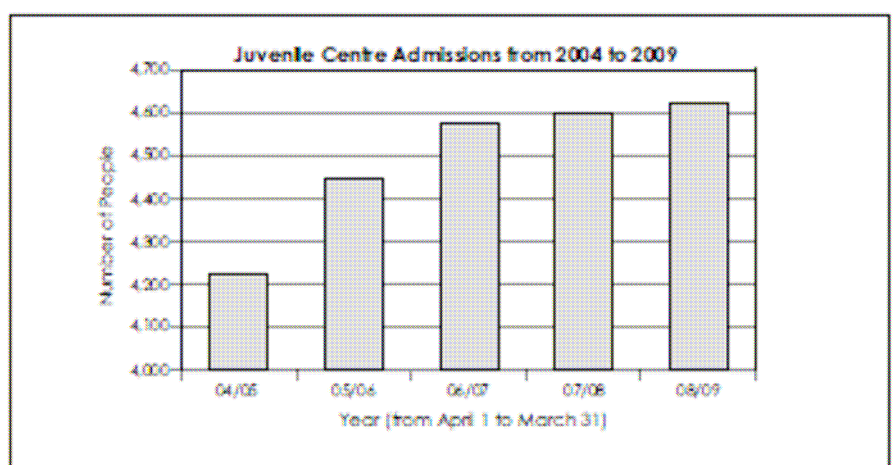   Cheese—8
     Hawaiian—3
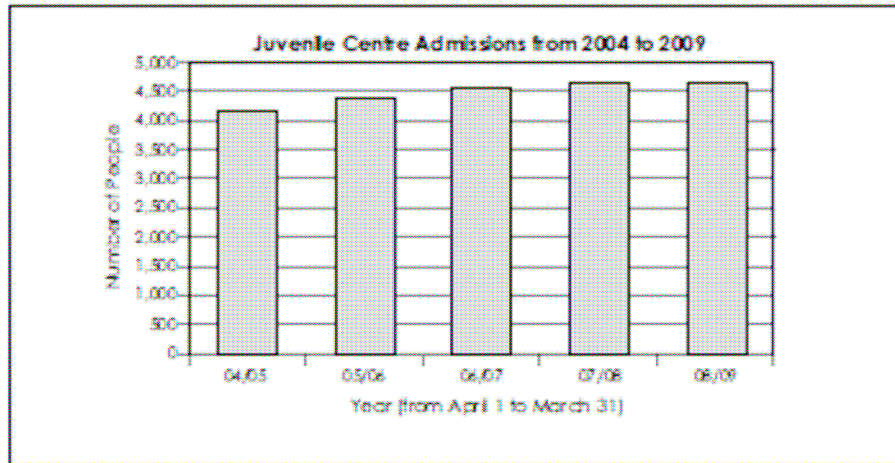   Vegetarian—3
     Meat Lovers—7

Draw a circle graph to represent the data. Be sure to include a title and all the appropriate labels or legend.
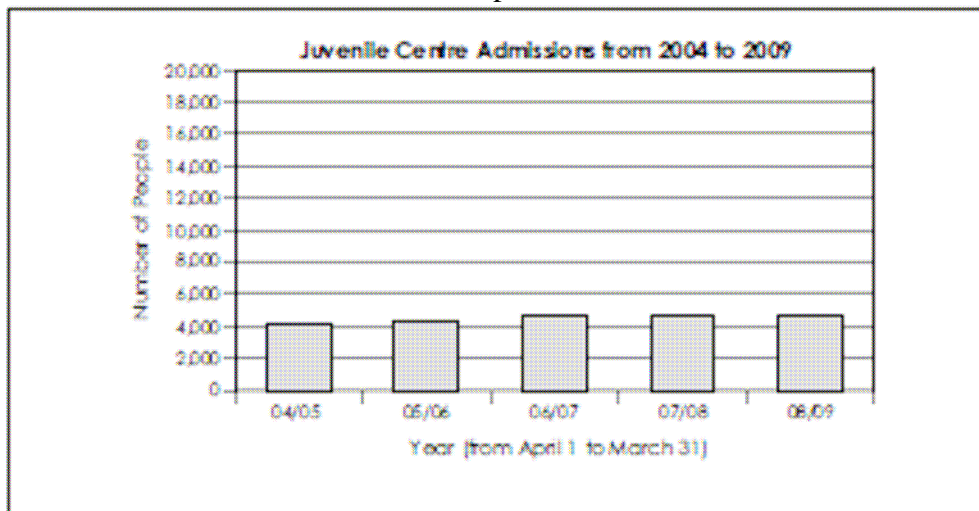(13 marks)

2. Use the Statistics Canada data depicted in the following graphs to answer the questions below.

Graph A

Graph B

Graph C

a) After a number of crimes are committed at local schools, the media is suggesting that a curfew is necessary to reduce the increasing amount of juvenile crime. Which graph would support this argument best? Explain why. (2 marks)

b) Which graph is the most "honest" graph because it does not present the data in a distorted way? (1 mark)

Amortization Table

Amortization Period
Monthly Payment Per $1000 Loan Proceeds

Annual Rate	1 Year Monthly	2 Years Monthly	3 Years Monthly	4 Years Monthly	5 Years Monthly
6.00%	$86.07	$44.33	$30.43	$23.49	$19.34
6.25%	$86.18	$44.44	$30.54	$23.61	$19.46
6.50%	$86.30	$44.56	$30.66	$23.72	$19.57
6.75%	$86.41	$44.67	$30.77	$23.84	$19.69
7.00%	$86.53	$44.78	$30.88	$23.95	$19.81
7.25%	$86.64	$44.89	$31.00	$24.07	$19.93
7.50%	$86.76	$45.01	$31.11	$24.19	$20.05
7.75%	$86.87	$45.12	$31.23	$24.30	$20.16
8.00%	$86.99	$45.24	$31.34	$24.42	$20.28
8.25%	$87.10	$45.34	$31.45	$24.53	$20.40
8.50%	$87.22	$45.46	$31.57	$24.65	$20.52
8.75%	$87.34	$45.57	$31.68	$24.71	$20.64
9.00%	$87.45	$45.68	$31.80	$24.89	$20.76
9.25%	$87.57	$45.80	$31.92	$25.00	$20.88
9.50%	$87.68	$45.91	$32.03	$25.12	$21.00
9.75%	$87.80	$46.03	$32.15	$25.24	$21.12
10.00%	$87.92	$46.14	$32.27	$25.36	$21.25
10.25%	$88.03	$46.26	$32.38	$25.48	$21.37
10.50%	$88.15	$46.38	$32.50	$25.60	$21.49
10.75%	$88.27	$46.49	$32.62	$25.72	$21.62
11.00%	$88.38	$46.61	$32.74	$25.85	$21.74
11.25%	$88.50	$46.72	$32.86	$25.97	$21.87
11.50%	$88.62	$46.84	$32.98	$26.09	$21.99
11.75%	$88.73	$46.96	$33.10	$26.21	$22.12
12.00%	$88.85	$47.07	$33.21	$26.33	$22.24
12.25%	$88.97	$47.19	$33.33	$26.46	$22.37
12.50%	$89.08	$47.31	$33.45	$26.58	$22.50
12.75%	$89.20	$47.42	$33.57	$26.70	$22.63
13.00%	$89.32	$47.54	$33.69	$26.83	$22.75
13.25%	$89.43	$47.66	$33.81	$26.95	$22.88
13.50%	$89.55	$47.78	$33.94	$27.08	$23.01
13.75%	$89.67	$47.89	$34.06	$27.20	$23.14
14.00%	$89.79	$48.01	$34.18	$27.33	$23.27