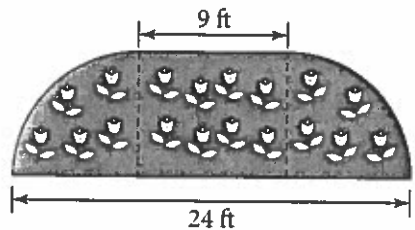# Chapters 1 to 8   Review

Chapter 1: Measurement and Geometry

1. a) Give the missing dimensions for Helen's garden. Explain how you calculated these measures. What assumption(s) did you make?


9 ft

24 ft

b) Determine the total area of Helen's garden to the nearest square foot.

c) A bag of topsoil costs $2.49 and will cover 2.5 m². How much will it cost Helen to cover her garden with a layer of topsoil? (Recall that 1 ft² = 0.09 m².)

2. The volume of this package is 720 cm³.

a) Determine x, the length of the package.

b) Determine the surface area of the package to the nearest square centimetre.

8 cm
9 cm
x
FRUIT Fries
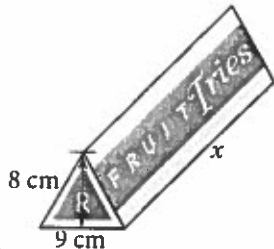
3. a) Determine the volume of concrete needed to build the staircase to the nearest tenth of a cubic metre.

1.2 m
48 cm
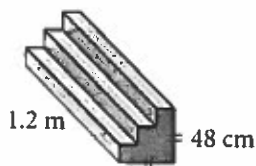
b) The front and sides of the staircase are to be painted. Calculate the surface area that needs to be painted to the nearest tenth of a square metre.

4. A can of tomato paste has a diameter of 1.5 in. and a height of 3 in.

a) Determine the surface area of the can to the nearest square inch.

b) Determine the volume of the can to the nearest tenth of a cubic inch.

c) Calculate the minimum surface area of a box with a lid that could hold 12 cans, arranged in four rows of three cans.

d) Calculate the volume of the box from part c).

5. Alphonse is designing a clay tile that must have an area of 130 cm². What dimensions of the tile will have a minimum perimeter?

6. a) Tina has 150 segments of 1-m fence rails to enclose a field for her horse. What are the dimensions of the field with the maximum possible area, assuming the fence rails cannot be cut?

b) How does your answer change if the fence rails can be cut? How much additional area does this provide?

c) Tina decides to use a 40-m section of her neighbour's fence as one side of the enclosure. How much additional area does this provide?

7. Gloves are to be shipped in boxes in the shape of square-based prisms with 150 pairs to a box. The gloves can be arranged in different ways, but each pair of gloves requires 900 cm³ of space.

a) Determine the volume of each shipping box.

b) What are the dimensions of the box with a minimum surface area? What shape is the box?

Chapter 2: Trigonometry

8. Solve each triangle for all lengths to one decimal place and all angles to the nearest degree. Which tools did you use?

  a) In $\triangle UVW$, $UV = 20.6$ m, $VW = 12.3$ m, and $\angle W = 106°$.

  b) In $\triangle JKL$, $JK = 15.2$ cm, $KL = 9.4$ cm, and $\angle L = 90°$.

  c) In $\triangle PQR$, $PQ = 16.9$ m, $QR = 13.6$ m, and $PR = 20.2$ m.

  d) In $\triangle DEF$, $DE = 15.4$ km, $EF = 6.7$ km, and $\angle E = 35°$.

  e) In $\triangle RST$, $RS = 8.3$ mm, $\angle R = 27°$, and $\angle S = 90°$.

  f) In $\triangle ABC$, $AB = 12.3$ cm, $BC = 23.7$ cm, and $\angle A = 124°$.

9. The tangent of an obtuse angle, θ, in standard position is $-\dfrac{5}{8}$.

  a) Sketch a diagram of $\angle\theta$.

  b) Identify the coordinates of a point that lies on the terminal arm of $\angle\theta$.

  c) Determine $\sin\theta$ and $\cos\theta$.

  d) Determine the measure of $\angle\theta$, using technology.

10. Denise is flying due south at a speed of 230 km/h. A wind is blowing from the west at a speed of 65 km/h, which is causing the plane to go off course. The actual speed and direction of Denise's plane is shown by the dashed arrow.
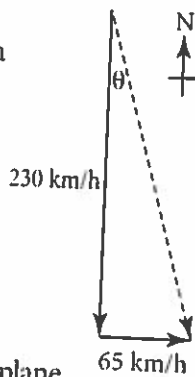
By what angle, θ, will Denise's plane be put off her southerly course if she does not correct her direction to account for the wind?

11. Evan is attempting to kick the soccer ball to Paula. Manuel, on the opposing team, is trying to intercept the ball.
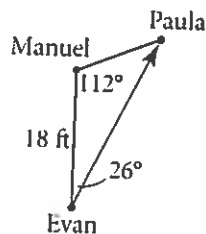
How far, to the nearest foot, must Evan kick the ball to reach Paula?

12. Salome is a surveyor. She stands on one side of a creek and looks at both ends of a bridge. Her measurements are shown in the diagram.
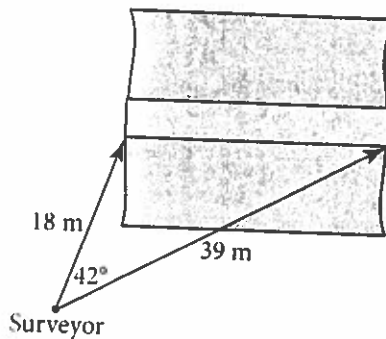
Determine the length of the bridge, to the nearest metre.

13. A bicycle racecourse is shown. How many times must the competitors cycle around the course to complete a 35 km race?

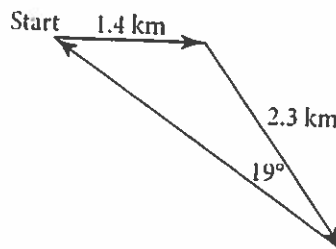## Chapter 3: Two-Variable Statistics

14. Fifteen teenagers were surveyed on the number of hours they spent reading per week.

Age (years)	Reading (hours)	Age (years)	Reading (hours)
13	15	13	9
17	2	14	3
16	1	18	0
15	6	16	2
18	4	13	7
14	0	14	1
17	14	19	20
16	5		

a) What do you know about each person?

b) Identify the variable(s).

c) What type of graph would be appropriate for this data set? Why?

d) Draw an appropriate graph.

e) Pose a question that would require one-variable data analysis.

f) Pose a question that would require two-variable data analysis.

15. A concert promoter will distribute a survey to customers in several major music store chains to find out which type of artists and music will sell more tickets. Write two four-question surveys for the company, one that follows the principles of surveying and the other that does not.

16. Examine the voter turnout data for the 2000 General Election.

Province	Electors on the Lists	Total Ballots Cast
Newfoundland and Labrador	405 210	231 178
Prince Edward Island	103 034	74 888
Nova Scotia	694 984	437 375
New Brunswick	571 569	387 178
Quebec	5 542 169	3 552 551
Ontario	7 713 744	4 474 001
Manitoba	786 309	490 083
Saskatchewan	698 145	435 079
Alberta	2 094 001	1 259 794
British Columbia	2 574 322	1 621 101
Yukon Territory	20 901	13 272
Northwest Territories	24 716	12 912
Nunavut	14 369	7 773

Source: Statistics Canada, Table: Voter Turnout for the 2000, 1997, 1993, and 1988 General Elections, Canada, by Province and Territory, Database: Statistics from 2000 Federal General Election, by Province or Territory.

a) Is there a relationship between the number of electors and the total ballots cast? Explain.

b) Divide the total ballots cast by the number of electors to find the voter turnout by percent. What relationships can you see now?

c) Does there seem to be a cause-and-effect relationship between the number of electors and the total ballots cast?

17. Refer to question 16.

a) Make a scatter plot of the data.

b) Use linear regression to model this relationship. How well does the regression equation fit the data? Explain.

c) Give the slope and y-intercept of the line, and interpret their meanings.

d) How many ballots would you expect to be cast in a region with 4 000 000 electors?

Chapter 4: Apply Data Management

**18.** The table shows the scores in a diving competition.

Rank	Score	Rank	Score
1	489.7	8	331.5
2	461.3	9	326.7
3	453.6	10	317.3
4	429.2	11	301.6
5	387.5	12	295.4
6	372.1	13	267.2
7	356.4	14	235.9

a) Determine the percentile ranking of a score of 331.5 and 267.2.

b) Which score is in the 65th percentile? the 90th percentile?

19. To calculate the unit mark for his mathematics classes, Mr. Patal weights his quizzes 20%, assignments 15%, tasks 25%, and tests 40%. Determine the unit mark for each student.

Student	Quiz (Out of 10)	Assignment (Out of 30)	Task (Out of 50)	Test (Out of 45)
Raymond	9	24	48	32
Noah	6	22	42	40
Connie	8	29	45	39
Maria	7	23	41	38
Lucas	6	18	37	44

20. The graph shows the monthly change in the Consumer Price Index (CPI) for Canada and the United States from October 2007 to September 2008.

Monthly Change in CPI from Oct 2007 to Sept 2008
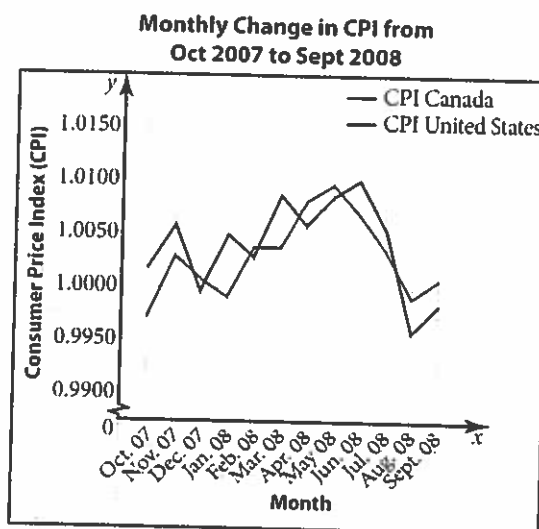
a) Which one-month span had the greatest *positive* change in the CPI for Canada? for the United States?

b) Which one-month span had the greatest *negative* change in the CPI for Canada? for the United States?

c) Which one-month span had the least change in the CPI for Canada? for the United States?

d) When was the difference between the two indices the greatest?

e) Which country seems to have lower inflation over this time period? Explain. Do you think this trend will continue?

Chapter 5: Graphical Models

21. The number of credit cards from Visa and MasterCard in circulation in Canada from 1990 to 2006 is shown.

Year	Number of Credit Cards (millions)
1990	23.2
1991	24.3
1992	24.4
1993	25.0
1994	27.5
1995	28.8
1996	30.2
1997	31.9
1998	35.3
1999	37.7
2000	40.1
2001	44.1
2002	49.4
2003	50.4
2004	53.4
2005	56.4
2006	61.1

a) Use technology to create a scatter plot of the data. Plot the line or curve of best fit and determine the equation.

b) Describe the relationship between the year and the number of credit cards.

c) Use the graph to predict the number of credit cards in circulation in 1989 and in 2007.

d) Determine the increase in the number of credit cards in circulation from 1990 to 1995 and from 1990 to 2000.

e) Is the rate of change in number of credit cards with respect to year increasing, constant, or decreasing? Give a reason for your answer.

f) Use your graph to predict the year when the number of cards in circulation will be 70 000 000.

22. The Fine Foods Store is marketing a new microwaveable meal. Market research shows that for every 25¢ increase in unit price, sales will decrease by 5 units per day. Sales have shown that at a price of $2.50, 100 meals were sold per day.

a) Copy and complete the table.

Unit Price ($)	Sales (units)	Revenue ($)
1.50		
1.75		
2.00		
2.25	105	
2.50	100	2.50(100) = 250.00
2.75	95	
3.00		
3.25		
3.50		
3.75		
4.00		

b) Use technology to make a scatter plot of meal price and revenue.

c) Describe the relationship between the unit price and revenue. What model—linear, quadratic, or exponential—does the relation follow? Calculate the first and second differences between revenues to confirm.

d) Determine an equation for the line or curve of best fit for the graph.

e) What unit price will give a maximum revenue?

f) The store decides to sell each meal for $4.50. Use your equation from part e) to determine the daily revenue the store could expect. How many meals would they sell per day at that price?

Chapter 6: Algebraic Models

23. Simplify. Write answers with positive exponents.

a) $y^3 \times y^{-6}$

b) $x^{-2} \div x^3$

c) $x^2z^{-1} \times x^2z^{-3}$

d) $\dfrac{y^3z^{-1}}{y^2z^{-4}}$

e) $(xy^3)^{-2}$

f) $\left(\dfrac{z^2}{y^{-1}}\right)^{-2}$

24. Evaluate each answer to question 1 for $x = 3$, $y = -2$, and $z = -1$.

25. Simplify. Then evaluate to two decimal places.

a) $\dfrac{4.03^{10}}{4.03^7}$

b) $-\dfrac{2.09^8}{2.09^6}$

c) $(-3.75^3)^{-1}$

d) $(0.83^3)^{-4}$

26. Evaluate, if possible. If not, explain why.

a) $-\sqrt{25}$

b) $(0.008)^{\frac{1}{3}}$

c) $\sqrt[4]{-81}$

d) $(-243)^{\frac{1}{5}}$

e) $\sqrt{-121}$

f) $(-64)^{\frac{1}{3}}$

27. Evaluate, if possible. If not, explain why.

a) $(81)^{\frac{3}{4}}$

b) $(-0.000\ 064)^{\frac{5}{6}}$

c) $(1024)^{\frac{2}{5}}$

d) $\left(\dfrac{27}{343}\right)^{\frac{2}{3}}$

28. Use a calculator to determine the value of each expression, to three decimal places.

a) $-\sqrt{42}$

b) $6.8^{\frac{2}{7}}$

c) $(-0.7)^{\frac{3}{4}}$

d) $5.29^{\frac{5}{8}}$

29. Write each expression as a power with the given base.

a) 36^2, base 6

b) 8^5, base 2

c) 80^0, base 9

d) 49^7, base 7

30. Solve. Check your solutions.

a) $5^{19 + y} = 125^{2(y + 9)}$

b) $32^{2x - 5} = 2^{3x + 1}$

c) $3^{3(4 - n)} = 27^{2n - 1}$

d) $16^{\frac{p}{3} - 3} = 2^{p - 7}$

31. A conical tent used to cover sand on construction sites has a radius that is half its height. The volume of a cone can be found using the formula $V = \dfrac{1}{3}\pi r^2 \times h$.

a) Write a formula for the tent's height in terms of its radius.

b) Substitute the height in terms of radius into the volume formula. Simplify.

c) Determine the radius and height of the tent to the nearest tenth of a metre, if the volume is 260 m³.

32. A scientist is studying the growth of two bacteria colonies. Their populations can be estimated by the given equations, where p is the population, in thousands of bacteria, t hours after the beginning of the study.

Colony A: $p = 2.5 \times 3^t$
Colony B: $p = 4.5^t$

a) Determine the initial population of each colony.

b) When will the colonies have the same population? What is this population?

33. The value of a $3000 stereo system depreciates at a rate of $750 per year.

a) Construct a table of values that compares the value of the stereo to time since it was purchased.

b) Is this relation linear, exponential, or neither? Explain.

Chapter 7: Annuities and Mortgages

34. Liang would like to borrow $8000. His bank offered him a three-year personal loan with monthly payments. The interest rate on the loan is 9.3% per year, compounded monthly.

a) Determine Liang's monthly payment.

b) Calculate the total amount that he will pay to the bank.

c) How much interest will Liang pay over the life of the loan?

35. Hazel plans to take a three-year college program. She estimates she will need $10 000 per year for each of the three years. Currently, her savings are in an account paying 2.75% per year, compounded annually.

a) What is the minimum amount Hazel will need in her account when she starts college so she can graduate without debt?

b) Hazel currently has no savings. If she starts college in two years, how much does she need to deposit into her account each week to meet her goal?

c) How much money will Hazel deposit into her account in total?

d) How much interest will she earn on her savings?

36. Rodrick has just purchased his first car. His bank has given him a car loan with payments of $455.97 per month for two years at 12.9% per year, compounded monthly.

a) What is the actual cost of the car if Rodrick were to pay for it in cash today?

b) How much interest will he pay by choosing the payment plan?

37. Enuka is purchasing a new moped. The after-tax cost is $4629. The interest rate on a personal loan from her bank is 8.7% per year, compounded monthly. Enuka can manage a monthly payment of $190.

a) Determine the number of months it will take for Enuka to repay the loan. Round your answer to the next full month.

b) Round N to the nearest multiple of 12 and solve for **PMT**.

c) Use your answer to part b) to determine the total amount that Enuka will pay for the moped.

38. Daphne and Yuan recently purchased their first home for $355 000. They made the minimum 5% down payment and mortgaged the rest. They agreed to a five-year fixed term mortgage amortized over 25 years at 4.35% per year.

a) Calculate the down payment.

b) Calculate the amount of the mortgage.

c) Determine their monthly payment.

d) Determine the amount still owing after five years.

39. Isiabo purchased a one-bedroom condominium for $195 000 with a 5% down payment. His mortgage is at 6.4% per year, amortized over 20 years.

a) Determine Isiabo's monthly payment.

b) Calculate the principal and the interest paid during year 5. Hint: Enter "49, 60)" into the Σ**Prn(** and Σ**Int(** functions on your graphing calculator.

c) Calculate the principal and the interest paid during year 12.

Chapter 8: Budgeting

40. Mila has a part-time job after school. She saves 25% of her net earnings. She has an account that pays 3.25% annual interest, compounded monthly. The table shows her earnings for the past four weeks.

Pay Date	Net Pay
November 1	$143.71
November 8	$165.94
November 15	$190.86
November 22	$172.43

a) Calculate the amount Mila has saved from each paycheque.

b) Assume Mila's earnings remain fairly constant. Estimate the amount she can save in one year.

c) Estimate the amount in Mila's account after one year.

41. Parvati wants to have $5000 saved to go on vacation one year from now. She is paid every two weeks.

a) How much does Parvati need to save from each paycheque to reach her goal?

b) Determine the future value of her savings in one year if her account pays 2.75% per year, compounded daily.

42. Nardeep earns $2300 per month after taxes. He lives in a one-bedroom condominium and pays $750 per month for his mortgage. The common fees for the condominium are $320 per month. He also receives a bi-monthly electricity bill of $150 and a quarterly water bill of $170.

a) Calculate Nardeep's fixed monthly expenses.

b) Calculate Nardeep's average monthly utility expenses.

c) Approximately what percent of his income does Nardeep spend on monthly accommodations costs?

d) Approximately how much of his income is left over?

43. Martha and Kevin have two children. This is the monthly budget that they used for the past year.

| Income ($)		Fixed Expenses ($)		Average Variable Expenses ($)	
Martha	2600	mortgage	2095	groceries	350
Kevin	2400	property taxes	270	electricity	90
		car loan	350	clothing	150
		insurance	65	gasoline	70
		daycare	800	car repairs	100
		telephone, cable, and Internet	60		
Total	5000	Total	3640	Total	760
Balance (Income − Expenses) = 600					

In September, their youngest child will be going into grade 1 so their daycare expenses will be reduced by 70%. They will have also paid off their car loan. Their property taxes will increase by 12% and electricity by 4%.

a) Adjust their budget and calculate their new balance.

b) Martha and Kevin want to invest the extra money in their children's RESPs, add money to their RRSPs, make an extra payment on their mortgage, and save for a vacation. Add a savings plan to their budget and calculate the new balance.

c) Explain and justify your savings plan.

2. a) i) $782.53   **ii)** $1562.56   **iii)** $1704.79

b) i) $65 732.52   **ii)** $131 255.04   **iii)** $143 202.36

c) i) $37 816.95   **ii)** $38 959.26   **iii)** $44 487.89

d) i) $27 915.69   **ii)** $92 295.38   **iii)** $98 714.82

   $127 000   **ii)** $318 000   **iii)** $509 000

3. a) $599.52

b) i) $19 194.24   **ii)** $4499.37   **iii)** $14 694.87

c) $245 500.63

4. a) $11 250   **b)** $213 750

c) $1823.45   **d)** $137 885.03

5. a) four Fridays: $2095.04; five Fridays: $2618.80

b) He will have to save money so he can pay the extra payment in months with five Fridays.

6. a) i) $320   **ii)** $8320   **b)** $8615.11

7. Answers may vary. For example, Lucy can save $288.47 from each paycheque for the year. At the end of the year she has $7500.22 and can buy the car.

8. a) $476.92

b) Amber should share a two-bedroom apartment so that the rent expense ($450) is less than her weekly net income.

9. a) $7540   **b)** $157.08   **c)** $1000.28

d) $1266.95   **e)** $275   **f)** $5139.83

Chapters 1 to 8 Review, pages 490–497

1. a) radius: 7.5 ft   **b)** 156 ft^2

c) approximately $14, not including taxes

2. a) 20 cm   **b)** approximately 623 cm^2

3. a) 0.2 m^3 **b)** 1.5 m^3

4. a) 18 in.^{2} **b)** 5.3 in.^{3} **c)** 117 in.^{2} **d)** 81 in.^{3}

5. square tile: 11.4 cm sides; circular tile: radius 6.4 cm

6. a) 37 m by 38 m

b) 37.5 m by 37.5 m; 0.25 m^2 additional area

c) 1900 m^2

7. a) 135 000 cm^3

b) cube with sides 51.3 cm in length.

8. a) $= 35°, \angle V = 39°, UW = 13.5$ m

b) JL = 11.9 cm, $\angle J = 38°, \angle K = 52°$

c) $\angle P = 42°, \angle Q = 82°, \angle R = 56°$

d) DF = 10.6 km, $\angle D = 21°, \angle F = 124°$

e) $\angle T = 63°, RT = 9.3$ mm, $ST = 4.2$ mm

f) $\angle B = 31°, \angle C = 25°, AC = 14.7$ cm or 15 cm

9. a) Sketches may vary. Terminal arm should be in second quadrant.

b) $(-8, 5)$

c) $\sin \theta = \dfrac{5}{\sqrt{89}}; \cos \theta = -\dfrac{8}{\sqrt{89}}$

d) 148°

10. 15.78°

11. 25 ft

12. 28 m

13. five times

14. a) Their age and the number of hours they spent reading each week.

b) age and hours spent reading

c) Scatter plot. This is two-variable data.

d)
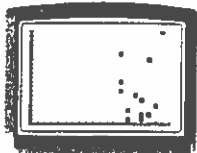
Xmin = 0, Xmax = 20, Xscl = 1, Ymin = 0, Ymax = 20, Yscl = 1

e) Answers may vary. For example: What is the mean number of hours spent reading?

f) Answers may vary. For example: Do teenagers read more or less as they get older?

15. Answers may vary.

16. a) Yes. As the number of electors increases, the total ballots cast increases.

b)

| Province	Voter Turnout (%)
Newfoundland and Labrador	57.1
Prince Edward Island	72.7
Nova Scotia	62.9
New Brunswick	67.7
Quebec	64.1
Ontario	58.0
Manitoba	62.3
Saskatchewan	62.3
Alberta	60.2
British Columbia	63.0
Yukon Territory	63.5
Northwest Territories	52.2
Nunavut	54.1

Voter turn out was between 60% to 64% in six provinces and the Yukon. Four provinces and territories had a lower voter turnout. New Brunswick and PEI had the highest voter turnout. The voter turn out for all provinces and territories was 61.18%.

c) Yes. As the number of electors increases, the total ballots cast increases.

17. a)
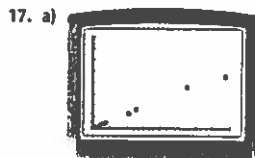
Xmin = 0, Xmax = 8 000 000, Xscl = 1 000 000, Ymin = 0, Ymax = 8 000 000, Yscl = 1 000 000

b) $y = 0.599x + 21 102$. Very well. $r = 0.9983$, which is very close to 1.

c) Slope is 0.599 and represents the number of ballots cast per new elector.

The y-intercept is 21 102 but has no real meaning in this situation.

18. a) 46th, 11th   **b)** 387.5, 461.3

19. Raymond: 82.4%; Noah: 79.6%; Connie: 87.7%; Maria: 79.8%; Lucas: 78.6%;

20. a) October to November; February to March

b) July to August for both

c) February to March; May to June

d) January

**e)** USA. There is a lot of change over the year, so it is difficult to make predictions.

21. a)
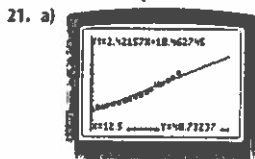
Xmin = 0, Xmax = 25, Xscl = 1, Ymin = 0, Ymax = 100, Yscl = 10

b) As the year increases, the number of credit cards increases.

c) 16 000 000 cards; 59 600 000 cards

d) 5 600 000 more cards; 16 900 000 more cards

e) Increasing. It takes less time for the number of credit cards to increase by 10 000 000 as time goes by.

f) 2011

22. a)

Unit Price ($)	Sales (units)	Revenue ($)
1.50	120	180.00
1.75	115	201.25
2.00	110	220.00
2.25	105	236.25
2.50	100	2.50(100) = 250.00
2.75	95	261.25
3.00	90	270.00
3.25	85	276.25
3.50	80	280.00
3.75	75	281.25
4.00	70	280.00

b)
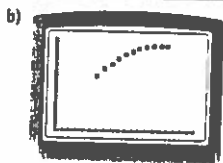
Xmin = 0, Xmax = 5, Xscl = 0.25, Ymin = 0, Ymax = 300, Yscl = 10

c) Revenue increases then slows and starts to decrease. Quadratic model. First differences are decreasing but second differences are all 2.5.

d) $y = -20x^2 + 150x$

e) $3.75

f) $270; 60 meals

23. a) $\dfrac{1}{y^4}$ **b)** $\dfrac{1}{x^5}$ **c)** $\dfrac{x^4}{z^4}$

d) yz^3 **e)** $\dfrac{1}{x^2y^6}$ **f)** $\dfrac{y^2}{z^4}$

24. a) $-\dfrac{1}{8}$ **b)** $\dfrac{1}{243}$ **c)** 81

d) 2 **e)** $\dfrac{1}{576}$ **f)** 4

25. a) 4.03^3; 65.45 **b)** -2.09^2; -4.37
c) -3.75^{-3}; 0.02 **d)** 0.83^{-12}; 9.36

26. a) -5 **b)** 0.2

c) not possible; positive root of a negative number

d) -3

e) not possible; positive root of a negative number

f) -4

27. a) 27

b) not possible; positive root of a negative number

c) 16 **d)** $\dfrac{9}{49}$

28. a) -6.481 **b)** 1.729

c) not possible; positive root of a negative number

d) 2.832

29. a) 6^4 **b)** 2^{15} **c)** 9^0 **d)** 7^{14}

30. a) $y = -7$ **b)** $x = \dfrac{26}{7}$ **c)** $n = \dfrac{5}{3}$ **d)** $p = 15$

31. a) $h = 2r$ **b)** $V = \dfrac{2}{3}\pi r^3$

c) radius: 5.0 m; height: 10.0 m

32. a) Colony A: 2500; Colony B: 1000

b) after 2.26 h; 29 940 bacteria

33. a)

Year	Value of Stereo ($)
0	3000
1	2250
2	1500
3	750
4	0

b) Linear. The relation is decreasing by a fixed amount.

34. a) $255.52 **b)** $9198.72 **c)** $1198.72

35. a) $28 423 **b)** $265.92 **c)** $27 655.68 **d)** $767.32

36. a) $9600.41 **b)** $1342.87

37. a) approximately 27 months

b) $210.84 when rounded to 24 months

c) $5060.16

38. a) $17 750 **b)** $337 250 **c)** $1838.57 **d)** $295 353.25

39. a) $1361.21

b) principal: $6137.17; interest: $10 197.39

c) principal: $9538.58; interest: $6795.97

40. a) $35.93, $41.49, $47.72, $43.11

b) approximately $2187.12 at an average of $42.06 savings per week

c) approximately $2049 at $168.25 deposit per month

41. a) $192.31 **b)** $5066.76

42. a) $1070 **b)** $131.67 **c)** 52% **d)** $1098.33

43. a)

	Income ($)	Fixed Expenses ($)		Average Variable Expenses ($)	
Martha	2600	mortgage	2095	groceries	350
Kevin	2400	property taxes	302.40	electricity	93.60
		car loan	0	clothing	150
		insurance	65	gasoline	70
		daycare	240	car repairs	100
		telephone, cable, and internet	60		
Total	5000	Total	2762.40	Total	763.60
Balance (Income − Expenses) = $1474					

b) Answers may vary.

c) Answers may vary.