Tutorial B: Extra Practice Problems (Unit 4-6)

Unit 4: Ratios

1. The ratio of hits on a website to the people who actually place an order from the website is 9:2.
   a) If a total of 4203 hits are recorded next month on the website, determine the number of people who place an order.
   b) If the average purchase per order is $80, determine the predicted total value of the orders next month.

2. In a class at Ryerson, the ratio of number of females to males is 7:8. If 15 females and 20 males are added to the class, the ratio of females to males is now 5:6. How many students of each gender were in the original class?

3. The ratio of boys to girls in a school dance is 4:5. If there are a total of 144 students present at the school dance, determine the number of boys and the number of girls at the dance.

4. In a certain company, people make either $20 per hour or $12 per hour. The ratio of those paid at the higher rate to those paid at the lower rate is 3:10. If the total amount paid out each hour to all employees is $2160, find the total number of employees in the company.

Unit 5: Financial Math

1. $80 000 is invested for three years, compounded annually. If the amount accumulated to $100 000 at the end of a three-years, find the annual rate of compound interest. Round to one decimal place.

2. An investor is given two choices for investing their money:

   Choice 1: interest is 6% per annum compounded semi-annually

   Choice 2: interest is 5.5% per annum calculated daily.

   If $10 000 is invested for 5 years, which of the two choices is best and by how much?

3. Bill invests 80 000 at 20% annual compound interest. How many years would it take for him to double this money? Assume that Bill only gets paid interest at the end of each year, round your answer to the nearest year.

4. A sum of money was invested at 10% per annum for 3 years, compounded monthly. If it is now worth $15 000, how much was invested initially?

Unit 6: Probability

1. There are 4 red balls, 3 blue balls and 2 white balls in a bag.
   a) If a ball is taken from the bag, what is the probability that it is
      i) A red ball?
      ii) Not blue?
   b) If two balls are taken from the bag at the same time, what is the probability that
      i) The two balls are white?
      ii) The two balls are of different colours given that the second ball is red?

2.

All in %	≥ 40 years old	<40 years old	TOTAL
Text <1 hour/day	0.25		
Text ≥ 1hour/day		0.3	
Total	0.35		

a) Fill in the missing values in the chart.

b) Determine the probability that a person selected, at random, is 40 or over given that the person texts for 1 hour or more.

c) Determine the probability that a person selected, at random, texts, but for less than 1 hour given that the person is under 40.

Solutions

Unit 4

1a) 934 purchases 1b) $74 720

2) 35 Females and 40 Males

3) 64 boys and 80 girls

4) 156

Unit 5

1) 7.72%
2) Choice 1 is better by $274.13
3) 4 years
4) $11126.10

Unit 6

1a) i) 4/9 ii) 2/3

1b) i) 1/36 ii) 5/18

2b) ¼ 2c) 7/13