Comparing Costs

1. Max can buy a stereo system, paying $599 now or paying $750 in a year.
   a) What factors would you suggest Max consider when deciding which plan to accept? How might these vary from factors you would suggest to someone else?
   b) What reasons would you give Max to convince him to consider these factors?
   c) What assumptions are made about Max agreeing to either plan? What would you suggest doing about these assumptions?

2. Sadie wants to take soccer lessons for a year. The soccer club she chooses offers the following payment options.
   Option A: Pay in a lump sum of $919, a week before classes start.
   Option B: Pay $300 now, $350 in 4 months, and $350 again after another 4 months.
   Option C: Pay $95 each month for the year.
   a) What is the total amount Sadie will pay for the year for
      i) option A? ii) option B? iii) option C?
   b) Explain factors that could make it reasonable for Sadie to choose
      i) the most expensive option
      ii) the least expensive option
   c) Research different plans for the cost of lessons that interest you. Decide which plan you would choose. Explain your process of arriving at your decision. Include a discussion of whether there is another choice you would consider.

3. Suppose you are arranging ice time for a recreational hockey team to practise. A local rink has three plans for ice use with these rates: $55/h for more than 2 h per week, $62/h for 1 h to 2 h per week, and $68/h for less than 1 h per week. Because of various commitments, the team members are not able to predict how many hours they will be able to practise during the season. Which plan would you book? Explain how you would justify your decision to the team.
Review of Prerequisite Skills

If you need help with any of the skills named in purple below, refer to Appendix A.

1. Write the next 3 terms.
   a) $100, 100(0.05), 100(0.05)^2, 100(0.05)^3, \ldots$
   b) $100, 106, 112, 118, \ldots$
   c) $1 + 0.06, (1 + 0.06)^2, (1 + 0.06)^3, \ldots$

2. Solving linear equations Solve for $r$.
   a) $120 = 100r$
   b) $250 = 500r(2)$
   c) $2500 = P r(10)$
   d) $I = 400r$
   e) $300 = 2000r t$
   f) $I = P r t$

   a) $100 = P (0.02)$
   b) $200 = P (0.05)(2)$
   c) $400 = P (0.04)$
   d) $I = P r t$

4. Solving linear equations Solve for $t$.
   a) $80 = 1000(0.04)t$
   b) $360 = 1200(0.06)t$
   c) $216 = 450(0.08)t$
   d) $5400 = 30000(0.02)t$
   e) $I = P r t$

5. Exponent rules Evaluate. Round to the nearest thousandth.
   a) $(1.04)^4$
   b) $(1.02)^{-18}$
   c) $(1.055)^5$
   d) $(1.098)^{-32}$
   e) $(1.08)^{-7}$
   f) $(1.065)^{11}$
   g) $(1.015)^8$
   h) $(1.045)^{20}$
   i) $(1.225)^{-3}$
   j) $(1.13)^{-6}$
   k) $(1.01)^{-15}$
   l) $(1.07)^{19}$

6. Evaluate.
   a) $5000(1 + 0.035)^6$
   b) $900000(1 + 0.031)^{-30}$
   c) $75000(1 + 0.006)^{-8}$
   d) $38000(1 + 0.015)^4$
   e) $142000(1 + 0.0525)^{-7}$

7. Evaluate.
   a) $300[(1.025)^{16} - 1]$
   b) $30000[(1.007)^7 - 1]$
   c) $48000[(1.009)^{12} - 1]$

8. Express each percent as a decimal.
   a) 15%  b) 6.13%  c) 0.8%  d) 4.75%  e) 1.3%  f) 0.25%  g) 7%  h) 3.05%  i) 8.25%

9. Calculate.
   a) 10% of 1000  b) 6% of 1250  c) 8.25% of 20000  d) 7.6% of 12390  e) 5.25% of $10500  f) 12.5% of $2254  g) 4.5% of $2000  h) 0.9% of 27355

10. Calculate the total cost of each, including 7% GST and 8% PST.
    a) stereo system $1999  b) car $21515  c) TV $1499  d) computer $1898