## Review of Prerequisite Skills

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

1. Order of operations Evaluate each expression.
a) $(-4)(5)+(2)(-3)$
b) $(-2)(3)+(5)(-3)+(8)(7)$
c) $(1)(0)+(1)(1)+(0)(0)+(0)(1)$
d) $(2)(4)+\frac{12}{3}-(3)^{2}$
2. Substituting into equations Given
$f(x)=3 x^{2}-5 x+2$ and $g(x)=2 x-1$, evaluate each expression.
a) $f(2)$
b) $g(2)$
c) $f(g(-1))$
d) $f(g(1))$
e) $f(f(2))$
f) $g(f(2))$
3. Solving equations Solve for $x$.
a) $2 x-3=7$
b) $5 x+2=-8$
c) $\frac{x}{2}-5=5$
d) $4 x-3=2 x-1$
e) $x^{2}=25$
f) $x^{3}=125$
g) $3(x+1)=2(x-1)$
h) $\frac{2 x-5}{2}=\frac{3 x-1}{4}$
4. Graphing data In a sample of 1000 Canadians, $46 \%$ have type O blood, $43 \%$ have type $\mathrm{A}, 8 \%$ have type B , and $3 \%$ have type $A B$. Represent these data with a fullylabelled circle graph.
5. Graphing data Organize the following set of data using a fully-labelled double-bar graph.

| City | Snowfall (cm) | Iotal Precipitation (cm) |
| :--- | :---: | :---: |
| St. John's | 322.1 | 148.2 |
| Charlottetown | 338.7 | 120.1 |
| Halifax | 261.4 | 147.4 |
| Fredericton | 294.5 | 113.1 |
| Québec City | 337.0 | 120.8 |
| Montréal | 214.2 | 94.0 |
| Ottawa | 221.5 | 91.1 |
| Toronto | 135.0 | 81.9 |
| Winnipeg | 114.8 | 50.4 |
| Regina | 107.4 | 36.4 |
| Edmonton | 129.6 | 46.1 |
| Calgary | 135.4 | 39.9 |
| Vancouver | 54.9 | 116.7 |
| Victoria | 46.9 | 85.8 |
| Whitehorse | 145.2 | 26.9 |
| Yellowknife | 143.9 | 26.7 |

6. Graphing data The following table lists the average annual full-time earnings for males and females. Illustrate these data using a fully-labelled double-line graph.

| Year | Women (\$) | Men (\$) |
| :---: | :---: | :---: |
| 1989 | 28219 | 42767 |
| 1990 | 29050 | 42913 |
| 1991 | 29654 | 42575 |
| 1992 | 30903 | 42984 |
| 1993 | 30466 | 42161 |
| 1994 | 30274 | 43362 |
| 1995 | 30959 | 42338 |
| 1996 | 30606 | 41897 |
| 1997 | 30484 | 43804 |
| 1998 | 32553 | 45070 |

7. Using spreadsheets Refer to the spreadsheet section of Appendix B, if necessary.
a) Describe how to refer to a specific cell.
b) Describe how to refer to a range of cells in the same row.
c) Describe how to copy data into another cell.
d) Describe how to move data from one column to another.
e) Describe how to expand the width of a column.
f) Describe how to add another column.
g) What symbol must precede a mathematical expression?
8. Similar triangles Determine which of the following triangles are similar. Explain your reasoning.

9. Number patterns Describe each of the following patterns. Show the next three terms.
a) $65,62,59, \ldots$
b) $100,50,25, \ldots$
c) $1,-\frac{1}{2}, \frac{1}{4},-\frac{1}{8}, \ldots$
d) a, b, aa, bb, aaa, bbbb, aaaa, bbbbbbbb, ...
10. Ratios of areas Draw two squares on a sheet of grid paper, making the dimensions of the second square half those of the first.
a) Use algebra to calculate the ratio of the areas of the two squares.
b) Confirm this ratio by counting the number of grid units contained in each square.
c) If you have access to The Geometer's Sketchpad ${ }^{\circledR}$ or similar software, confirm the area ratio by drawing a square, dilating it by a factor of 0.5 , and measuring the areas of the two squares. Refer to the help menu in the software, if necessary.
11. Simplifying expressions Expand and simplify each expression.
a) $(x-1)^{2}$
b) $(2 x+1)(x-4)$
c) $-5 x(x-2 y)$
d) $3 x(x-y)^{2}$
e) $(x-y)(3 x)^{2}$
f) $(a+b)(c-d)$
12. Fractions, percents, decimals Express as a decimal.
a) $\frac{5}{20}$
b) $\frac{23}{50}$
c) $\frac{2}{3}$
d) $\frac{138}{12}$
e) $\frac{6}{7}$
f) $73 \%$
13. Fractions, percents, decimals Express as a percent.
a) 0.46
b) $\frac{4}{5}$
c) $\frac{1}{30}$
d) 2.25
e) $\frac{11}{8}$
