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)<sup>2</sup>

- 2. Substituting into equations Given  $f(x) = 3x^2 - 5x + 2$  and g(x) = 2x - 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) 
$$2x - 3 = 7$$
  
b)  $5x + 2 = -8$ 

c) 
$$\frac{x}{2} - 5 = 5$$

**d)** 
$$4x - 3 = 2x - 1$$

**e)** 
$$x^2 = 25$$

**f)**  $x^3 = 125$ 

g) 
$$3(x+1) = 2(x-1)$$
  
h)  $\frac{2x-5}{2} = \frac{3x-1}{4}$ 

- 4. Graphing data In a sample of 1000 Canadians, 46% have type O blood, 43% have type A, 8% have type B, and 3% have type AB. Represent these data with a fullylabelled circle graph.

1)

5. Graphing data Organize the following set of data using a fully-labelled double-bar graph.

City	Snowfall (cm)	Total 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	28 219	42 767
1990	29 050	42 913
1991	29 654	42 575
1992	30 903	42 984
1993	30 466	42 161
1994	30 274	43 362
1995	30 959	42 338
1996	30 606	41 897
1997	30 484	43 804
1998	32 553	45 070

- **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, ...
  - **b)** 100, 50, 25, ...

c) 
$$1, -\frac{1}{2}, \frac{1}{4}, -\frac{1}{8}, \dots$$

- **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*® 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)  $(2x + 1)(x - 4)$   
c)  $-5x(x - 2y)$   
d)  $3x(x - y)^2$   
e)  $(x - y)(3x)^2$   
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)  $\frac{11}{8}$