Review of Prerequisite Skills

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

1. **Scatter plots** For each of the following sets of data, create a scatter plot and describe any patterns you see.

a)

x	y
3	18
5	15
8	12
9	10
12	8
15	4
17	1

b)

x	y
4	6
7	2
13	17
14	5
23	19
24	11
25	30
33	21
36	29
40	39
42	26
46	32

2. **Scatter plots** For each plot in question 1,

i) graph the line of best fit and calculate its equation

ii) estimate the x- and y-intercepts

iii) estimate the value of y when $x = 7$

3. **Graphing linear equations** Determine the slope and y-intercept for the lines defined by the following equations, and then graph the lines.

a) $y = 3x - 4$ **b)** $y = -2x + 6$

c) $12x - 6y = 7$

4. **Graphing quadratic functions** Graph the following functions and estimate any x- and y-intercepts.

a) $y = 2x^2$

b) $y = x^2 + 5x - 6$

c) $y = -3x^2 + x + 2$

5. **Graphing exponential functions**

a) Identify the base and the numerical coefficient for each of the following functions.

i) $y = 0.5(3)^x$ **ii)** $y = 2^x$ **iii)** $y = 100(0.5)^x$

b) Graph each of the functions in part a).

c) Explain what happens to the value of x as the curves in part b) approach the x-axis.

6. **Sigma notation** Calculate each sum without the use of technology.

a) $\sum_{i=1}^{8} i$ **b)** $\sum_{i=1}^{5} i^2$

7. **Sigma notation** Given $\bar{x} = 2.5$, calculate each sum without the use of technology.

a) $\sum_{i=1}^{6} (i - \bar{x})$ **b)** $\sum_{i=1}^{4} (i - \bar{x})^2$

8. **Sigma notation**

a) Repeat questions 6 and 7 using appropriate technology such as a graphing calculator or a spreadsheet.

b) Explain the method that you chose.

9. **Sampling (Chapter 2)** Briefly explain each of the following terms.

a) simple random sample

b) systematic sample

c) outlier

10. **Bias (Chapter 2)**

a) Explain the term *measurement bias*.

b) Give an example of a survey method containing unintentional measurement bias.

c) Give an example of a survey method containing intentional measurement bias.

d) Give an example of sampling bias.