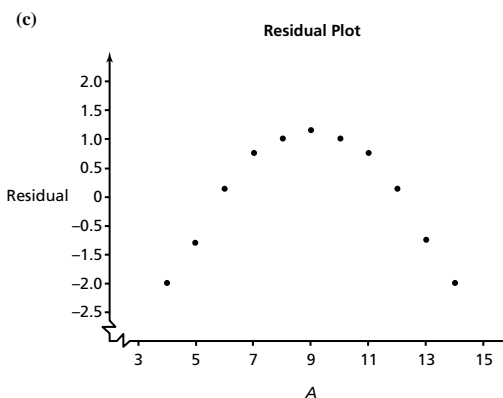
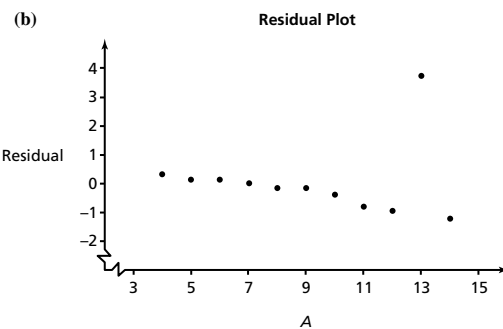
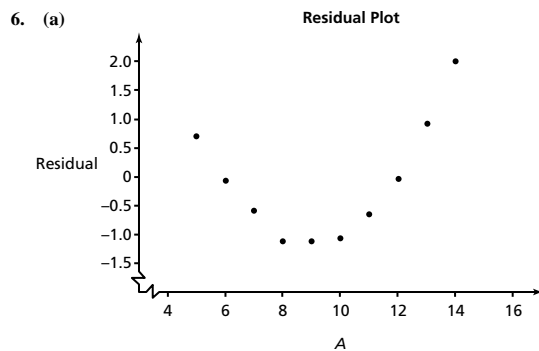
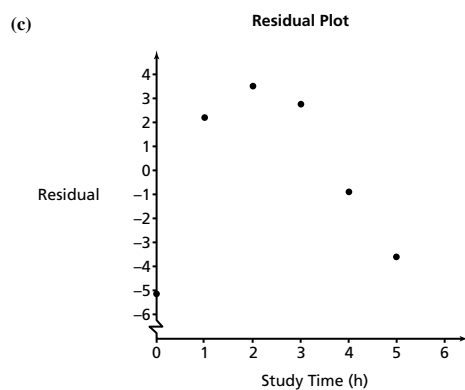
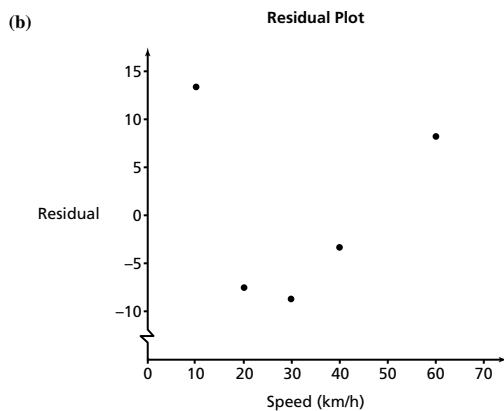
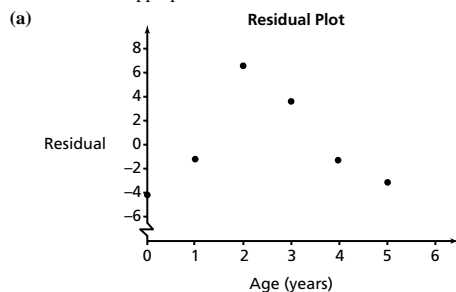
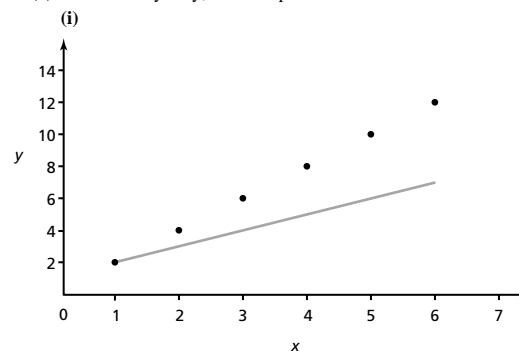


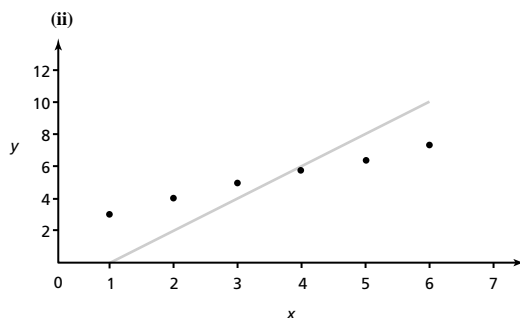
1.4 Exercises, page 51

- strong positive correlation
 - moderate negative correlation
 - weak positive correlation
 - no correlation
- negative correlation
 - positive correlation
 - negative correlation
 - positive correlation
- $y = 17.457x + 23.857$; $R^2 = 0.9848$
 - $y = -0.8919x + 55.541$; $R^2 = 0.7451$
 - $y = 4.7143x + 55.048$; $R^2 = 0.8589$
- 0.9924
 - 0.8632
 - 0.9268
- Each of these residual plots suggests that a quadratic regression would be more appropriate.

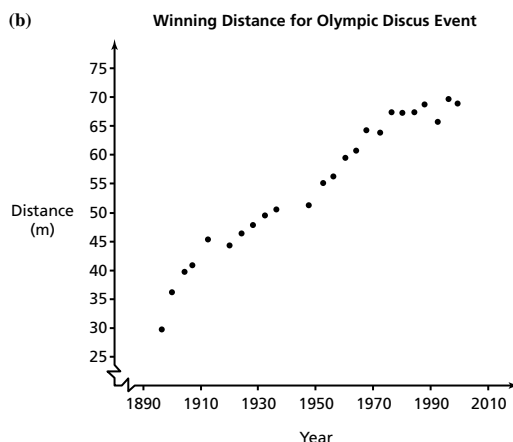


7. (a) Answers may vary; for example:





- (b) (i) The line of best fit is too low (all the actual values are higher than the line of best fit).
(ii) The slope of the line of best fit is the wrong sign.
(c) The residual plot would be all zeros.
(d) The residual plot should have small values, both positive and negative.
8. (a) 25% (b) 72.25% (c) 43.56%
(d) 81% (e) 1% (f) 10.24%
9. (a) A medium to low number, 0.66 or less
(b) Answers may vary; for example: 0.36, 0.67, 0.23, 0.14, -0.56 or about $\frac{1}{5}$ or 20%
10. (a) No. People who get heart disease are more likely to be ill and thus, taking medicine (maybe aspirin).
(b) No. Depression and anger might be one of the many causes of illness. A good and cheerful attitude helps you to stay healthy, but it does not prevent you from becoming ill.
(c) No. Must take into account other possibilities, such as the chemistry of the water. Why did the pine needles fall into the water in the first place? Were the trees dying?
12. (a) Between 1896 and 1996, the winning distance has been increasing at an almost steady rate and it has more than doubled.



13. (a) Population: $y = 393\,329.7092x - 753\,176\,520.4$,
Births: $y = -12\,412.35x + 24\,813\,089$,
Deaths: $y = 1645.078\,462x - 3\,084\,404.065$,
Infant Deaths: $y = -430.860\,769\,2x + 856\,494.4277$;
Population: 22 862 996, Births: 323 522, Deaths: 161 336,
Infant Deaths: 6426
Note: The line of best fit for Deaths starts at 1960 and the earlier data were ignored.
- (b) Population: $y = 338\,693.0495x - 646\,153\,909$;
Births: $y = -1212.606\,458x + 2\,786\,924.049$,
Note: This is not very significant, $r = -0.437\,580$;

Deaths: $y = 1809.539\,083x - 3\,407\,250.213$;
Infant Deaths: $y = -330.585\,923\,2x + 659\,798.1764$
(c) Only Births does not have a line of best fit with a high significance.

1.5 Exercises, page 60

- same data, different scales
 - The same, from \$35 000 to \$42 000 (by \$7000) over 12 months (1 year)
 - The first graph shows a large profit growth over the year. The second graph shows very little profit over the year.
- They are identical, except in size.
 - The area has increased by a factor of four (10 squares to 40 squares).
 - A factor of 2
 - Because the area of the second house is so much larger than the first house, it appears that the size of homes has increased tremendously.
- It seems that the price in 1980 is 2.5 times the price in 1975, but really it is only 1.5 times. The price in 1990 seems 4 times the price in 1975, but really it is only 2 times. Also, it does not look like a steady increase in the price, although it is a steady increase. Change the vertical scale (cost) so that it has regular intervals.
- “Near a 20-year low” could mean 19 years and a few months. “18-year low” might not have included 1999, since it was not over yet.
- Misleading; 4 out of 5 of all dentists? Or, 4 out of 5 dentists that they asked.
 - Misleading; Maybe the store in Bruce Mines has mostly that company’s product.
 - Misleading; They probably mean 75% of the ones that go to university obtain a degree, or that 75% of graduates go to university.
 - Misleading; What do they mean by closer ties? Maybe 53% of the Canadians agreed.
 - Misleading. This could mean that other countries are doing better. We could even be doing better, but other countries’ improvements were better over the year.
- (a) Yes, the horizontal scale (time) is not properly spaced.
 - (a) Yes; the vertical scale (percent) is not properly spaced. The differences look larger.
 - (a) Yes; the vertical scale (percent) is not properly spaced. The differences look larger.
 - (a) Yes. Choose a better format for answers. Choose a larger sample than Business Leaders.

12. (a) **Newspaper Data**

