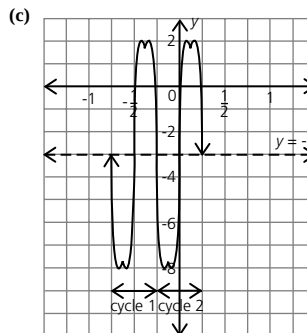
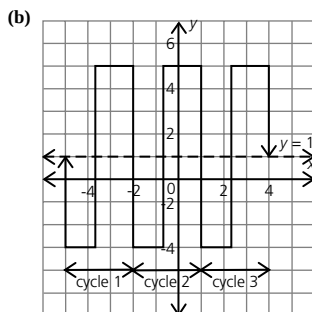
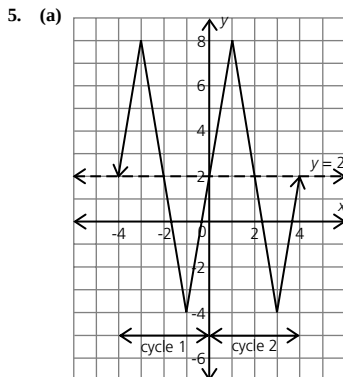


Practise, Apply, Solve 5.1, page 413

- iv, quadratic model
 - i, periodic function
 - v, periodic function
 - iii, linear model
 - ii, exponential model
- Average monthly temperature in Sudbury is periodic because it generally repeats itself on a monthly basis from year to year. For example, the average temperature in July should be about the same regardless of the year.
 - Rabbit and coyote populations depend on each other. As the rabbit population increases, the coyote population, which eats rabbits also increases to the point where the rabbit population starts to decrease. This in turn causes the coyote population to decrease, which then causes the rabbit population to increase.
 - The melting of winter snow and the run off of spring rain causes the lake level to rise. The heat of the summer sun increases evaporation and causes the lake level to decrease. This cycle generally repeats itself over a twelve-month period.
 - As the earth revolves around the sun, the position of the sun in the morning sky changes with the seasons. In winter, the sun is further south in the Ontario sky, appearing closer to the equator. As the months progress to summer, the sun is further north in the Ontario sky, appearing further from the equator. As the months continue towards winter, the sun moves south in the Ontario sky.
 - As a tuning fork vibrates, it moves back and forth from its rest position. The tines of the fork move a fixed distance in one direction, back to rest and a fixed distance in the other direction and back to rest a certain number of times per second. The motion repeats itself in a predictable pattern.
- (b) and (c) are periodic.
- 3 s; Nolan is increasing his jump height with each jump.
 - 2 s; This is the time for one complete jump.
 - $H = 2.25$
 - 1.75 m, twice the amplitude of the curve added to the minimum height is Nolan's maximum height off of the ground



- period: 2, amplitude: 5.5, $y = -2.5$
 - period: 4, amplitude: 1, $y = 3$
 - period: 180° , amplitude: 3, $y = 9$
- Answers will vary.
- Answers will vary.
- The separate parts of the graph represent the wash, spray, rinse and spin cycles.
 - 4 min
 - 50 L, 10 L, 50 L
 - 110 L
 - $V = 25 \text{ L}$
 - 25
- maximum: 30 m, minimum: 10 m
 - 20 s
 - 10 m, radius of the Ferris wheel
 - $H = 20 \text{ m}$
- The migration of the swallows follows the same pattern every year. The repeated pattern is periodic.
- Add two cycles to the previous graph.
 - one lap around the track
- The traffic light goes from one colour to the next following the same pattern of colour and the same time interval for each colour.
 - a long green light changes to yellow for a short time and then turns red
 - 120 s
 - 140 s; shift given graph up two squares on the grid and right 20 s. The Advanced Green block will cover two squares along the y-axis and 20 s along the x-axis and be below the Green light section. Repeat the graph to show two cycles.
- A specified interval of the independent variable produces specific values of the dependent variable. If the length of the interval of the independent variable is repeated, then the exact value of the dependent variable is also repeated.