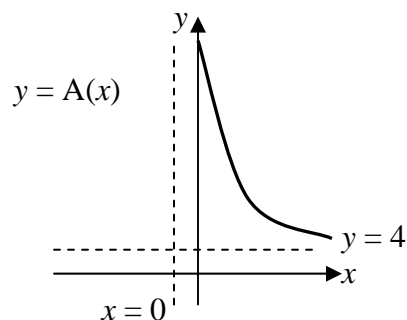
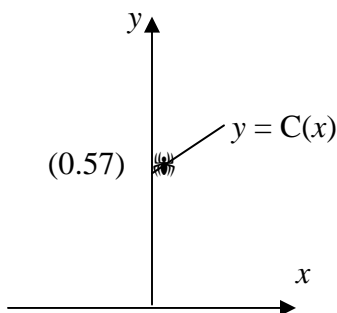


## Section 1.6 Limits Involving Infinity; Asymptotes

31. It cost  $C(x) = 4x + 57$  thousand dollars to produce  $x$  units of a certain commodity. Sketch the graph of  $C(x)$  and the average cost function  $A(x) = \frac{C(x)}{x}$  for  $x > 0$ . What happens to  $A(x)$  as  $x \rightarrow \infty$ ?
32. It costs  $C(x) = 2x^2 + 3x + 14$  thousand dollars to produce  $x$  units of a certain commodity. Sketch the graph of  $C(x)$  and the average cost function  $A(x) = \frac{C(x)}{x}$  for  $x > 0$ . What happens to  $A(x)$  as  $x \rightarrow \infty$ ?
33. The pain-relieving effect of a drug may be measured by the function
- $$p(x) = \frac{100x^2}{x^2 + 0.5x + 0.03}$$
- where  $p(x)$  is the percentage of pain relief to be expected when  $x$  units of drug are used. Sketch the graph of  $p(x)$ . What happens to  $p(x)$  as  $x \rightarrow \infty$ ?
34. The percentage of students at a college who have mononucleosis  $t$  days after the first case is reported is given by  $p(t) = \frac{100t}{2t^2 + 32}$

**Answers: “the fuzzy marks are supposed to be points of intersection”**

31.  $C(x) = 4x + 57$ ; as  $x \rightarrow \infty$ ,  $A(x) \rightarrow 4$



33. As  $x \rightarrow \infty$ ,  $p(x) \rightarrow 100$

