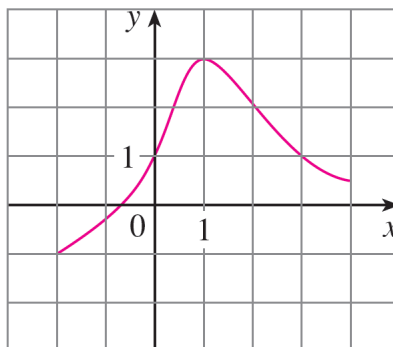


Exercise 3

The graph of a function f is given.



- (a) State the value of $f(1)$.
- (b) Estimate the value of $f(-1)$.
- (c) For what values of x is $f(x) = 1$?
- (d) Estimate the value of x such that $f(x) = 0$.
- (e) State the domain and range of f .
- (f) On what interval is f increasing?

Solution

At $x = 1$ the function has the value $f = 3$: $f(1) = 3$.

At $x = -1$ the function has the value $f \approx -0.25$: $f(-1) \approx -0.25$.

The function takes the value $f = 1$ when $x = 0$ and $x = 3$: $f(0) = 1$ and $f(3) = 1$.

The function takes the value $f = 0$ when $x \approx -0.66$: $f(-0.66) \approx 0$.

The function f is defined for $-2 \leq x \leq 4$, so the domain is $\{x \mid -2 \leq x \leq 4\}$. Also, f takes values between -1 and 3 , so the range is $\{y \mid -1 \leq y \leq 3\}$.

f is increasing on the interval $-2 \leq x \leq 1$.